

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

Developing a Commission jurisdictional  
specific cost-effectiveness test for distributed  
energy resources incorporating CETA

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DOCKET UE-210804

**INITIAL COMMENTS OF PUBLIC COUNSEL**

**December 13, 2021**

## I. INTRODUCTION

1. On November 4, 2021, the Washington Utilities and Transportation Commission (“UTC” or “Commission”) issued an initial Notice of Opportunity to File Written Comments (hereinafter “Notice”) under Docket UE-210804, “Developing a Commission jurisdictional specific cost-effectiveness test for distributed energy resources incorporating CETA.” This initial Notice is generally focused on Step 1 of the 5-step process set forth by the National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources (“NSPM”),<sup>1</sup> which is to articulate applicable policy goals and set the general agenda going forward. Staff identified 10 “policy goals related to DERs” that it identified as “contained in CETA”, which it listed in Table 3 of the Notice. Staff requested comments from stakeholders on those goals, and provided a series of questions pertaining to cost-effectiveness tests for distributed energy resources (DERs).
2. Public Counsel appreciates the opportunity to file comments in this matter and has engaged the services of Dr. Ezra Hausman of Ezra Hausman Consulting to assist in our participation in this docket. Dr. Hausman is an expert in energy and environmental economics who has over two decades of experience with energy market issues, including market design and restructuring, planning, ratemaking, environmental regulation, and pricing. A copy of Dr. Hausman’s Curriculum Vitae is attached as Attachment A.

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<sup>1</sup> Nat’l Screening Energy Project (NESP), NATIONAL STANDARD PRACTICE MANUAL FOR BENEFIT-COST ANALYSIS OF DISTRIBUTED ENERGY RESOURCES (Aug. 2020), [https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs\\_08-24-2020.pdf](https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-24-2020.pdf).

## II. RESPONSES TO NOTICE QUESTIONS

***Question 1: Do the policy goals identified in Table 3 appropriately and sufficiently cover the applicable policy goals for Step 1 of the process to develop a Commission specific primary test for DERs?***

3. Public Counsel supports all of the goals articulated in Table 3, which are generally based on the goals articulated in CETA, as appropriate considerations in developing a Washington-specific primary cost-effectiveness test for DERs. However, the work of articulating Washington goals and values underlying the primary test should not end with this list. CETA does not exist in a vacuum—Washington has both a long history and a rapidly evolving framework for energy resource policy, regulation, and planning. The ultimate enumeration of policy goals should be informed by a full suite of Washington resources, including other legislation, rulemakings, executive orders, and Commission orders to ensure that the full picture of Washington values, policy goals, and practices is considered. Consideration of how other states have navigated the NSPM process can be informative.<sup>2</sup>

4. For example, in New Hampshire’s process to establish a state-specific primary test, a working group “reviewed a comprehensive list of current energy laws and statutes, Commission orders, and other energy and EE-related policies. These policies highlighted key state EE policy goals, which guided the group’s identification of relevant costs and benefits in later steps.”<sup>3</sup> In Arkansas, a working group reviewed legislative language and Commission orders dating back to

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<sup>2</sup> Case studies, presentation, and related materials from various state processes may be found at: <https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/nspm-application-by-state/>.

<sup>3</sup> NESP, NATIONAL STANDARD PRACTICE MANUAL CASE STUDY: NEW HAMPSHIRE (Dec. 2019) (Amended Jan. 2020), [https://nationalefficiencyscreening.org/wp-content/uploads/2019/12/NewHampshire\\_NSPM-CaseStudy\\_1.20update.pdf](https://nationalefficiencyscreening.org/wp-content/uploads/2019/12/NewHampshire_NSPM-CaseStudy_1.20update.pdf).

1977, and then “worked together to identify specific categories of impacts that each of the identified policies suggested might be appropriate to include in the state’s cost-effectiveness analyses.”<sup>4</sup>

5. Further, any such list should be fully referenced to the source(s), so that stakeholders can evaluate the goals with consideration of the context in which they were articulated.

6. The goals enumerated in Table 3 of the Notice include general principles of utility regulation, along with a range of societal and environmental policy directives that might help inform our evaluation of different types of DERs. This is appropriate, as the Commission is attempting to develop a cost-effectiveness test that will be applicable to a wide range of resource types. Stakeholders and the Commission will face a considerable challenge determining how to quantify and weigh different kinds of costs and benefits that will arise from different resources, in different regulatory and operational contexts, and how they should be evaluated in the light of these policy goals. For these reasons and more, it will be crucial to be as specific as possible in identifying policy goals, providing adequate context, and attempting to weigh their relative merit and importance in meeting the needs of Washington utility customers and the public.

7. Further, Public Counsel believes the following policy goals, also articulated in CETA (RCW 19.405.010(4)), but not listed in Table 3, should be considered in the development of a primary benefit-cost test:

- promoting energy independence;
- creating high quality jobs in the clean energy sector;

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<sup>4</sup> NESP, NATIONAL STANDARD PRACTICE MANUAL CASE STUDY: ARKANSAS (Jan. 2019) (Amended June 2019), [https://nationalefficiencyscreening.org/wp-content/uploads/2019/06/Arkansas\\_NSPM\\_Case-Study\\_5.19-Update.pdf](https://nationalefficiencyscreening.org/wp-content/uploads/2019/06/Arkansas_NSPM_Case-Study_5.19-Update.pdf).

- maximizing the value of hydropower;
- continuing to encourage and provide incentives for clean alternative energy sources, including providing electricity for the transportation sector; and
- protecting clean air and water in the Pacific Northwest.

8. Finally, Public Counsel notes that the general goal of ensuring that Washington customers benefit from the maximum possible use of cost-effective DERs, including energy efficiency and all other resource types, should be included in the list of policy goals.

***Question 2: Do any of these policy goals apply to some DERs but not others? Please discuss the advantages and disadvantages of applying some of the policy goals to different DER types.***

9. Public Counsel recognizes that not all policy goals will be implicated by all types of DERs, and that at some point in each evaluative context a reduced set of goals may be considered. However, Public Counsel believes that all of the policy goals articulated in Notice Table 3 and above, and in the final list of goals, should be *considered* when evaluating each type of DER, at least in the initial stages. The field of DER technology and its integration into utility operations is quickly evolving, and the Commission should not pre-judge which benefits might be provided by different types of resources. Rather, the Commission and stakeholders should identify and determine a treatment for each type of cost and benefit in the context of cost-effectiveness analysis, and allow for reasonable flexibility in applying these measurements to specific cases. The advantage of considering a full enumerated set of goals is that it will lead to a more comprehensive and consistent evaluation of resource alternatives without prejudging applicability; the potential disadvantage is creating too complex and cumbersome a process. However, Public Counsel believes it is unrealistic to catalog in advance which goals to consider

when, without knowledge of what kinds of resources and operational contexts might arise in the future.

***Question 3: The cost-effectiveness tests currently employed by Washington investor-owned utilities are the modified total resource cost test and the utility cost test. For stakeholders to have a full understanding of current practice, utilities should provide a table of utility impacts (costs and benefits) currently used for evaluating cost-effectiveness of DERs in response to this question. Specifically, the IOUs should indicate what impacts are currently included for the following different DER resources: energy efficiency, demand response, distributed generation, distributed storage, building electrification, transportation electrification, or other DERs identified in a planning process.***

10. Public Counsel looks forward to reviewing the responses to this question from the investor-owned utilities (IOUs).

***Question 4: Are there specific questions related to cost-effectiveness from the NSPM or other sources that are necessary to answer during the course of this investigation? For example, choice of discount rates or incremental cost calculations? Please describe why answers to these questions are necessary to develop a Commission jurisdiction-specific test.***

11. It will be critical for stakeholders and the Commission to establish certain standards for cost-effectiveness testing that all petitioners will use in their analysis, to ensure that all resources are evaluated equally and faithfully reflect the state's policy goals. Staff has identified two of these in this question: the treatments of discount rate and incremental cost.<sup>5</sup> Other such

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<sup>5</sup> The term "incremental cost" has several applications in Washington, including, in CETA, the incremental cost of compliance (RCW 19.405.060). Here we refer to the incremental cost of a DER that provides certain benefits over other alternatives – for example, the incremental cost of an energy-efficient appliance over a similar model with standard efficiency.

considerations include: choice of measure lifetimes; how to monetize or otherwise reflect environmental and societal/equity benefits; how to reflect economic benefits such as job creation; and which benefits and costs are to be included, and how each should be weighted, in the analysis.<sup>6</sup> At the same time, some flexibility will be required to accommodate a wide range of different DER types, some of which may be unknown today. However, Public Counsel believes that specific guidance and agreement on Washington-specific treatment of key issues, including discount rates and incremental cost calculations, will be vital to support a consistent, unbiased, and value-driven framework for evaluating DER cost-effectiveness.

***Question 5: This Docket is focused on electric utility system cost-effectiveness changes due to CETA. Although CETA does not apply to gas utility systems, other recent policy changes indicate a need to examine current cost-effectiveness practices. Please describe the advantages and disadvantages of addressing both electric and natural gas cost-effectiveness in this Docket to ensure a consistent framework is used.***

12. Public Counsel would appreciate clarification on what specific kinds of gas resources or practices Staff has in mind that might be subject to similar cost-effectiveness evaluation. Absent this clarification, Public Counsel believes that similar cost-effectiveness considerations and values may be associated with gas and electric energy efficiency projects, specifically, but otherwise believes that DER cost-effectiveness evaluation raises numerous issues and considerations that are distinct in nature from the benefits and costs of natural gas resource options. Including a broader range of gas-related resources in the same framework could

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<sup>6</sup> See NSPM Chapter 2, Principle 4 for a discussion of the treatment of hard-to-quantify benefits in cost-effectiveness tests.

complicate the process and require stakeholders to attempt to create overly general rules that could encompass divergent considerations for both fuels. This could be unduly burdensome, and could compromise the focus required for successfully navigating the NSPM process.

13. In any case, it is likely that the process of developing an electric DER cost-effectiveness test will greatly inform stakeholders and the Commission regarding how to reflect Washington values and policy preferences in consideration of gas system cost-effectiveness analysis. Many of the ideas and approaches, if not the specific details, are likely to be applicable to both fuels.

***Question 6: The Commission is seeking stakeholder input to develop a workplan for completing this investigation. After reviewing the NSPM, the Commission will convene a series of stakeholder workshops and solicit multiple rounds of stakeholder comments to develop a new primary, jurisdiction-specific test and address other topics raised during stakeholder meetings. We anticipate this process will include five to seven meetings. Please provide feedback on this proposed process, including reasonable timeframes for completion.***

14. Public Counsel believes that all five of the “steps” identified in the NSPM and in the Notice are crucial to the success of establishing a primary cost-effectiveness test and looks forward to participating in the process laid out by the Commission. However, the consideration of a wide range of values and policy directives does not mean that the final test has to be overly complicated to implement. Public Counsel believes the Commission and stakeholders should work throughout the process to balance comprehensive treatment of Washington policy goals with ensuring that the test is reasonably convenient to implement and understandable to all stakeholders. The process proposed by the Commission appears to be reasonable and to be reflective of the depth of review and analysis recommended in the NSPM.



15. Public Counsel looks forward to reviewing the views of other parties in response to this question.

***Question 7: We anticipate the discussions will cover the key issues outlined below, following the 5-step NSPM process described above. Please provide comments on this list of issues and identify any additional issues the Commission should evaluate.***

16. Public Counsel supports the preliminary list of issues to consider and offers the following additional issues the Commission should consider covering in the discussions:

- Review opportunities for use of DERs as non-wires / non-pipes alternatives, and how this function should be recognized in cost-effectiveness evaluation;
- Discuss the proper applications of benefit-cost analysis and rate impact analysis and the distinct role of each in resource planning and decision making;
- Address whether the Commission should initiate development of a Washington-specific Technical Reference Manual (TRM) to support consistent analysis of energy efficiency measures;<sup>7</sup>
- Development and use of baseline and potential studies;
- Treatment of equity considerations in cost-effectiveness analysis;
- How to treat benefits of moving away from fossil fuels altogether – i.e., measures such as electrification, storage, and others that support the transition to a non-fossil economy.

### III. CONCLUSION

17. Public Counsel appreciates the opportunity to provide these comments and looks forward to reviewing comments from other stakeholders. Public Counsel looks forward to participating in the workshop scheduled to discuss storage scheduled for June 22, 2021. If you have any

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<sup>7</sup> See <https://www.energy.gov/sites/default/files/2021-07/technical-reference-manuals.pdf> for a detailed discussion of Technical Reference Manuals. According to this document, Washington utilities currently use measure data from the Northwest Regional Technical Forum (RTF - <https://rtf.nwcouncil.org/>) on an advisory basis.

questions about these comments, please contact Shay Bauman at

[Shay.Bauman@ATG.WA.GOV](mailto:Shay.Bauman@ATG.WA.GOV), or Nina Suetake at [Nina.Suetake@ATG.WA.GOV](mailto:Nina.Suetake@ATG.WA.GOV).

DATED this 13th day of December 2021.

ROBERT W. FERGUSON  
Attorney General

/s/ 

NINA SUETAKE, WSBA No. 53574  
Assistant Attorney General  
Public Counsel Unit  
800 Fifth Avenue, Suite 2000  
Seattle, WA 98104  
[Nina.Suetake@ATG.WA.GOV](mailto:Nina.Suetake@ATG.WA.GOV)  
(206) 389-2055

Docket UE-210804

Initial Comments of Public Counsel

Attachment A

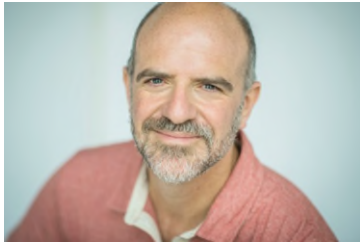
CV of Ezra Hausman

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EZRA HAUSMAN CONSULTING

**Ezra D. Hausman, Ph.D.**

*Curriculum Vitae*



I am an independent consultant in energy and environmental economics.

I have worked for over two decades as an energy market expert with a focus on market design and market restructuring, planning and ratemaking, energy efficiency programs, environmental regulation, and pricing of energy, capacity, transmission, losses and other electricity-related services. I have performed market analysis, provided expert testimony, led workshops and working groups, and provided other support in both regulated and restructured electricity markets for clients including federal and state agencies, offices of consumer advocate, legislative bodies, cities and towns, non-governmental organizations, foundations, industry associations, and resource developers.

I hold a Ph.D. in atmospheric science from Harvard University, an S.M. in applied physics from Harvard University, an M.S. in water resource engineering from Tufts University, and a B.A. in psychology from Wesleyan University.

**PROFESSIONAL EXPERIENCE**

**Ezra Hausman Consulting**, Newton, MA. President, March 2014 – Present.

I provide research, analysis, expert testimony, and policy support services in regulatory, litigation, and stakeholder processes covering a wide range of electric sector and electricity market issues. The focus of my consulting work includes:

- Integrated resource planning and related regulatory processes
- Wholesale market design and analysis for electricity, generating capacity, and related services
- Demand-side management/energy efficiency program design and cost/benefit analysis
- Electric vehicle infrastructure, policy, and role for electric utilities
- Interaction of air quality and environmental regulations with electricity markets
- Analysis and implementation of greenhouse gas rules
- Clean Air Act enforcement support
- Long-term electric power system planning
- Consumer and environmental protection
- Market power and market concentration analysis in electricity markets.

**Synapse Energy Economics Inc.**, Cambridge, MA.

Chief Operating Officer, March 2011 – February 2014;

Vice President, July 2009 – February 2014;

Senior Associate, 2005-2009.

- Conducted research, wrote reports, and presented expert testimony pertaining to consumer, environmental, and public policy implications of electricity industry regulation. Provided expert support and representation in planning, greenhouse gas mitigation, and other stakeholder processes.
- As Vice President and Chief Operating Officer, I was responsible for day-to-day operations of the company, including:
  - Financial performance
  - Quality assurance
  - Talent management
  - Communications and Marketing
  - Professional development of staff

In this role, I had overall responsibility for ensuring that project managers and project teams had the tools, information, and training they needed to successfully serve client's needs and to produce high-quality deliverables on time and on budget. I was also a resource available to any of our clients to address any issues of customer service, quality, or any other matters.

**Charles River Associates (CRA)**, Cambridge, MA. Senior Associate, 2004-2005

*CRA acquired Tabors Caramanis & Associates in October 2004.*

**Tabors Caramanis & Associates**, Cambridge, MA. Senior Associate, 1998-2004

As a member of the modeling group, developed and maintained dispatch modeling capability in support of electricity market consulting practice.

Performed modeling and analysis of electricity and natural gas markets, generation and transmission systems.

**Global Risk Prediction Network, Inc.**, Greenland, NH. Vice President, 1997-1998

Developed private sector applications of climate forecast science in partnership with researchers at Columbia University.

**Hub Data, Inc.**, Cambridge, MA. Financial Software Consultant, 1986-1987, 1993-1997

Responsible for design, implementation and support of analytic and communications modules for bond portfolio management software.

**Abt Associates, Inc.**, Cambridge, MA. Environmental Policy Analyst, 1990-1991

Quantitative risk analysis to support federal environmental policy-making.

**Massachusetts Water Resources Authority**, Charlestown, MA. Analyst, 1988-1990

Applied and evaluated demand forecasting techniques for the Eastern Massachusetts service area; assessed yield/reliability relationship for the eastern Massachusetts water supply system.

**Somerville High School**, Somerville, MA. Math Teacher, 1986-1987  
Taught courses including trigonometry, computer programming, and basic math.

## **EDUCATION**

**Ph.D.**, Earth and Planetary Sciences. Harvard University, Cambridge, MA, 1997  
**S.M.**, Applied Physics. Harvard University, Cambridge, MA, 1993  
**M.S.**, Civil Engineering. Tufts University, Medford, MA, 1990  
**B.A.**, Wesleyan University, Psychology. Middletown, CT, 1985

## **FELLOWSHIPS, AWARDS AND AFFILIATIONS**

**UCAR Visiting Scientist Postdoctoral Fellowship**, 1997  
**Postdoctoral Research Fellowship**, Harvard University, 1997  
**Certificate of Distinction in Teaching**, Harvard University, 1997  
**Graduate Research Fellowship**, Harvard University, 1991-1997  
**Invited Participant**, UCAR Global Change Institute, 1993  
**House Tutor**, Leverett House, Harvard University, 1991-1993  
**Graduate Research Fellowship**, Massachusetts Water Resources Authority, 1989-1990

### ***Teaching Fellowships:***

**Harvard University:** *Principles of Measurement and Modeling in Atmospheric Chemistry; Hydrology; Introduction to Environmental Science and Public Policy; The Atmosphere.*

**Wesleyan University:** *Introduction to Computer Programming; Psychological Statistics; Playwriting and Production.*

### ***Community Service***

*Vice President of Finance*, Congregation Dorshei Tzedek, 2018 - Ongoing  
*Academic Mentor and Athletic Coach*, SquashBusters Boston, 2014 - Ongoing  
*Judge*, Cleantech Open innovation competitions, 2015-2016  
*President*, Burr Elementary School Parent Teacher Organization, 2005-2007

## **EXPERT TESTIMONY AND SERVICES**

**Before the Public Service Commission of Wisconsin (Docket 5-CE-153) – 2021 - Ongoing**  
Expert participant on behalf of Clean Wisconsin regarding a CPCN for a proposed generating plant in Wisconsin.

**Puget Sound Energy EIM Collaborative – 2021 – Ongoing**  
Expert participant on behalf of the Attorney General of Washington Public Counsel in collaborative process on treatment of Western Energy Imbalance Market costs and benefits in power cost forecasting.

**Before the Washington Utilities and Transportation Commission (Docket No. UE-210183) – 2021 – Ongoing**

Expert participant on behalf of the Attorney General of Washington Public Counsel in stakeholder process relating to electricity markets and compliance with the Clean Energy Transformation Act.

**Before the New Jersey Board of Public Utilities (Docket No. EO20110730) – 2021 - ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Rockland Electric Company Electric Vehicle Program and Electric Vehicle Surcharge.

**Before the New Jersey Board of Public Utilities (Docket No. EO20130630) – 2021 - ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding Jersey City Power and Light proposed Electric Vehicle Program and Associated Cost Recovery Mechanism.

**Before the New York Public Service Commission (Cases 20-E-0380 & 20-G-0381) – 2020-Ongoing**

Expert Witness on behalf of the Sierra Club in Niagara Mohawk Power Corporation Gas and Electric Rate filing.

**Before the New Jersey Board of Public Utilities (Docket No. GO20090622) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the New Jersey Natural Gas SAVEGREEN filing pursuant to the New Jersey Clean Energy Act.

**Before the New Jersey Board of Public Utilities (Docket No. GO20090618) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the South Jersey Gas Energy Efficiency filing pursuant to the New Jersey Clean Energy Act.

**Before the New Jersey Board of Public Utilities (Docket No. GO20090619) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Elizabethtown Gas Energy Efficiency filing pursuant to the New Jersey Clean Energy Act.

**Before the New Jersey Board of Public Utilities (Docket No. EO20090620) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Jersey Central Power & Light Energy Efficiency and Conservation Plan filing pursuant to the New Jersey Clean Energy Act.

**Before the New Jersey Board of Public Utilities (Docket No. EO20090621) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Atlantic City Electric Company Energy Efficiency Program filing pursuant to the New Jersey Clean Energy Act.

**Before the New Jersey Board of Public Utilities (Docket No. EO20090623) – 2020-ongoing**  
Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Rockland Electric Company Energy Efficiency and Peak Demand Reduction Programs filing pursuant to the New Jersey Clean Energy Act.

**Before the Public Utility Commission of Oregon (Case No. UE 374) – 2020-Ongoing**  
Expert witness on behalf of the Sierra Club in Pacific Power General Rate Case.

**Before the Pennsylvania Public Utility Commission (Docket No. R-2020-3017206) – 2020-ongoing**

Expert witness on behalf of the Clean Energy Council regarding Philadelphia Gas Works' general rate increase request.

**Before the Public Service Commission of the District of Columbia (Formal Case No. 1154) – 2020**

Expert witness on behalf of the Sierra Club regarding Washington Gas Light's PROJECTpipes II filing.

**Before the New Jersey Board of Public Utilities (Docket No. EO18020190) – 2018-2021**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Atlantic City Electric's proposed Voluntary Program for Plug-In Vehicle Charging.

**Before the New Jersey Board of Public Utilities (Docket. Nos. ER18070688 and GR18070689) – 2019**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Public Service Electric & Gas' 2018 PSE&G Green Programs Cost Recovery Filing. Settled prior to filing of intervenor testimony.

**Before the New Jersey Board of Public Utilities (Docket No. G018030350) – 2018**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the South Jersey Gas' Energy Efficiency Programs IV filing. Settled prior to filing of intervenor testimony.

**Before the New Jersey Board of Public Utilities (Docket No. GO18030355) – 2018**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the New Jersey Natural Gas Company's SAVEGREEN energy efficiency and renewable energy programs. Case was settled prior to filing of intervenor testimony.

**Before the New Jersey Board of Public Utilities (Docket No. EO18101111) – 2018-2021**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Public Service Electric & Gas' proposed *Clean Energy Future - Electric Vehicle and Energy Storage* program.

**Before the New Jersey Board of Public Utilities (Docket Nos. GO18101112 and EO16101113) – 2018-2020**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the Public Service Electric & Gas' proposed *Clean Energy Future - Energy Efficiency* program.

**New Jersey Board of Public Utilities – 2020**

Expert participation in stakeholder process regarding conversion to high-efficiency street lights on behalf of Rate Counsel.

**New Jersey Board of Public Utilities – 2019-Ongoing**

Expert participation in stakeholder process regarding transportation electrification policies on behalf of Rate Counsel.

**New Jersey Division of Rate Counsel – 2016-Ongoing**

General policy and stakeholder participation support on matters related to energy efficiency, renewable energy, and electrification of transportation in New Jersey.



**Before the Washington Utilities and Transportation Commission (Docket No. UE-200115) – 2020**

Expert witness on behalf of the Sierra Club regarding potential sale Puget Sound Energy's share of a Colstrip generating unit.

**Before the Utah Public Service Commission (Docket No. 18-035-36) – 2020**

Expert witness on behalf of the Sierra Club in Rocky Mountain Power depreciation case.

**PacifiCorp Multi-State Protocols Stakeholder Process – 2019-Ongoing**

Participation on behalf of Sierra Club in stakeholder process to establish protocols for allocation of resource costs and benefits among PacifiCorp states.

**Advisory Consulting for Natural Resources Defense Council – 2019-2020**

Provide advisory and technical support to analysis team.

**Memphis Light, Gas and Water – Power Supply Alternatives Study 2019-2020**

Expert support for Sierra Club participation in Power Supply Advisory Team.

**Before the Washington Utilities and Transportation Commission (Dockets UE-190334 and UG-190335) – 2019**

Expert witness on behalf of the Sierra Club in Avista Energy rate case.

**Before the Public Service Commission of South Carolina (Docket No. 2018-319-E) – 2019**

Expert witness on behalf of the Sierra Club in Duke Energy Carolinas rate case.

**Before the Public Service Commission of South Carolina (Docket No. 2018-318-E) – 2019**

Expert witness on behalf of the Sierra Club in Duke Energy Progress rate case.

**Before the Virginia State Corporation Commission (Case No. PUR-2018-00065) – 2018**

Expert witness on behalf of the Sierra Club in Dominion Power IRP proceeding.

**Before the Missouri Public Service Commission (Case No. EO-2018-0038) – 2018**

Expert services in support of Sierra Club's participation in integrated resource planning process.

**Before the Florida Public Service Commission (Docket No. 20170225-EI) – 2017-2018**

Expert witness on behalf of the Sierra Club in FPL Determination of Need proceeding.

**Before the North Carolina Utilities Commission (Docket No. E-7, SUB 1146) – 2017-2018**

Expert witness on behalf of the Sierra Club in Duke Energy Carolinas rate case.

**Before the New Jersey Board of Public Utilities (Docket No. ER17080869) – 2017**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding Public Service Electric and Gas Company's proposed Energy Efficiency 2017 Program.

**Before the New Jersey Board of Public Utilities (Docket No. EO17030196) – 2017**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding Rockland Electric Company's proposed Low Income Audit and Install Energy Efficiency Program.

**Before the New Jersey Board of Public Utilities (Docket No. GO15050504) – 2017**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding Elizabethtown Gas Company's Petition to Extend the Term of Energy Efficiency Programs. Settled prior to filing of intervener testimony.

**Before the North Carolina Utilities Commission (Docket No. E-2, SUB 1142) – 2017**

Expert witness on behalf of the Sierra Club in Duke Energy Progress rate case.

**Before the Idaho Public Utilities Commission (Case No. AVU-E-17-01) – 2017**

Expert witness on behalf of the Sierra Club in Avista Corporation rate case.

**Before the Iowa Utilities Board (Docket No. RPU-2017-0002) – 2017**

Expert witness on behalf of the Sierra Club for Interstate Power and Light petition for ratemaking principles for proposed 500 MW wind project.

**Before the Washington Utilities and Transportation Commission (Dockets UE-170033 and UG-170034) – 2017**

Expert witness on behalf of the Sierra Club in Puget Sound Energy (PSE) rate case.

**Clean Power Plan Modeling in PJM and MISO – 2016-2017**

Participation on behalf of the Sustainable FERC Project in ISO initiative to model scenarios for state compliance with federal greenhouse gas mitigation rules.

**California ISO/PacifiCorp Market Integration – 2015-2017**

Technical support to Sierra Club in stakeholder review and participation in all relevant proceedings in California.

**Before the New Jersey Board of Public Utilities (Docket No. GO14121412) – 2015**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding the New Jersey Natural Gas Company's petition for approval of its Extension of Energy - Efficiency Programs. Case was settled prior to filing of intervener testimony.

**Before the New Jersey Board of Public Utilities (Docket No. GR15010090) – 2015**

Expert witness on behalf of the New Jersey Division of Rate Counsel regarding South Jersey Gas Company's petition for for Approval to Continue its Energy Efficiency Programs and Energy Efficiency Tracker. Case was settled prior to filing of intervener testimony.

**United States Department of Justice – US District Court for the Eastern District of Missouri (Civil Action No. 4:11-CV-00077) – 2013-2019**

Expert witness on behalf of the United States Department of Justice on successful prosecution of clean air act case.

**Before the Missouri Public Service Commission (Case No. EO-2015-0084) – 2014-2015**

Expert services in support of Sierra Club's participation in integrated resource planning process.

**Before the Missouri Public Service Commission (File No. ER-2014-0258) – 2014-2015**

Expert witness on behalf of the Sierra Club in Ameren Missouri rate case.

**Before the Arizona Corporation Commission (Docket No. E-01345A-11-0224) – 2014**

Expert witness on behalf of the Sierra Club regarding Arizona Public Service petition for rate treatment for acquisition of an additional ownership share of the Four Corners generating units.

**Before the Missouri Public Service Commission (Docket No. ET-2014-0085) – 2013**

Testimony on behalf of the Missouri Solar Energy Industries Association regarding Union Electric (d/b/a Ameren Missouri) motion to suspend payment of solar rebates.

**Before the Missouri Public Service Commission (Docket No. ET-2014-0059 and ET-2014-0071) – 2013**

Testimony on behalf of the Missouri Solar Energy Industries Association regarding Kansas City Power and Light Company's motions to suspend payment of solar rebates.

**Eastern Interconnect Planning Collaborative (EIPC) – 2012-2013**

Expert support on behalf of coalition of NGO stakeholders in transmission and resource planning process, including development and review of modeling assumptions and interim results, and development of comments.

**Puget Sound Energy (PSE) – 2012-2013**

Expert participant in PSE's 2013 IRP stakeholder process on behalf of the Sierra Club.

**Before the Washington Utilities and Transportation Commission (Docket Nos. UE-111048 and UG-111049) – 2011**

Testimony on behalf of the Sierra Club regarding the cost of operating the Colstrip power plant and other power procurement issues.

**Before the Kansas Corporation Commission (Docket No. 11-KCPE-581-PRE) - 2011**

Presented written and live testimony on behalf of the Sierra Club regarding Kansas City Power and Light request for predetermination of ratemaking principles.

**Vermont Department of Public Service - 2011**

Provided scenario analysis of the costs and benefits of various electric energy resource scenarios in support of the state Comprehensive Energy Plan.

**Massachusetts Department of Energy Resources – 2009-2011**

Served as expert analyst and modeling coordinator for analysis related to implementation of the Massachusetts Global Warming Solutions Act.

**Iowa Office of Consumer Advocate – 2010-2011**

Assisted Consumer Advocate in evaluating a proposed power purchase agreement for the output of the Duane Arnold nuclear power station.

**Before the Missouri Public Service Commission (Docket No. EW-2010-0187) – 2010**

Expert participant on behalf of the Sierra Club in stakeholder process to develop a "demand side investment mechanism" in Missouri.

**Before the Louisiana Public Service Commission (Docket No. R-28271 Subdocket B) – 2009-2010**

Expert participant on behalf of the Sierra Club in Renewable Portfolio Standard Task Force considering RPS for Louisiana.

**Joint Fiscal Committee of the Vermont Legislature – 2008-2010**

Serving as lead expert advising the Legislature on economic issues related to the possible recertification of the Vermont Yankee nuclear power plant.

**Town of Littleton, NH – 2006-2010**

Serving as expert witness on the value of the Moore hydroelectric facility.

**Before the Nevada Public Service Commission (Docket No. 08-05014) – August 2008**

Presented prefiled and live testimony on behalf of Nevadans for Clean Affordable Reliable Energy regarding the proposed Ely Energy Center and resource planning practices in Nevada.

**Before the Mississippi Public Service Commission (Docket No. 2008-AD-158) – July 2008**

Presented written and live testimony on behalf of the Sierra Club regarding the resource plans filed by Entergy Mississippi and Mississippi Power Company.

**Kansas House of Representatives - Committee on Energy and Utilities – February 2008**

Presented testimony on behalf of the Climate and Energy Project of the Land Institute of Kansas on a proposed bill regarding permitting of power plants. Focus was on the risks and costs associated with new coal plants and on their contribute to global climate change.

**Before the Vermont Public Service Board (Docket No. 7250) – 2006-2008**

Prepared report and testimony in support of the application of Deerfield Wind, LLC. For a Certificate of Public Good for a proposed wind power facility.

**Before the Iowa Utilities Board (Docket No. GCU-07-1) – October, 2007 – January 2008**

Presented wrtten and live testimony on behalf of the Iowa Office of Consumer Advocate regarding the science of global climate change and the contribution of new coal plants to atmospheric CO<sub>2</sub>.

**Before the Nevada Public Service Commission (Docket No. 07-06049) – October 2007**

Presented prefiled direct testimony on behalf of Nevadans for Clean Affordable Reliable Energy regarding treatment of carbon emissions costs and coal plant capital costs in utility resource planning.

**Before the Massachusetts General Court, Joint Committee on Economic Development and Emerging Technologies – July 2007**

Presented written and live testimony on climate change science and the potential benefits of a revenue-neutral carbon tax in Massachusetts.

**Town of Rockingham, VT – 2006-2007**

Served as expert witness on the value of the Bellows Falls hydroelectric facility.

**Before the South Dakota Public Utilities Commission (Case No EL05-22) – June 2006**

**Minnesota Public Utilities Commission (Docket TR-05-1275) – December 2006**

Submitted prefiled and live testimony on the contribution of the proposed Big Stone II coal-fired generator to atmospheric CO<sub>2</sub>, global climate change and the environment of South Dakota and Minnesota, respectively.

**Before the Arkansas Public Service Commission (Docket No. 06-070-U) – October 2006**

Submitted prefiled direct testimony on behalf of the Arkansas Commission General Staff on inclusion of new wind and gas-fired generation resources in utility rate base.

**Federal Energy Regulatory Commission (Docket Nos. ER055-1410-000 and EL05-148-000) – May-Sept 2006**

- Participant in settlement hearings on proposed capacity market structure (the Reliability Pricing Model, or RPM) on behalf of State Consumer Advocates in Pennsylvania, Ohio and the District of Columbia

- Invited participant on technical conference panel on PJM's proposed Variable Resource Requirement (VRR) curve
- Filed Pre- and post-conference comments and affidavits with FERC
- Participated in numerous training and design conferences at PJM on RPM implementation.

**Before the Illinois Pollution Control Board (Docket No. R2006-025) – June-Aug 2006**

Profile and live testimony presented on behalf of the Illinois EPA regarding the costs and benefits of proposed mercury emissions rule for Illinois power plants.

**Long Island Sound LNG Task Force – January 2006**

Presentation of study on the need for and alternatives to the proposed Broadwater LNG storage and regasification facility in Long Island Sound.

**Before the Iowa Utilities Board (Docket No. SPU-05-15) – November 2005**

Presented written and live testimony on whether Interstate Power and Light's should be permitted to sell the Duane Arnold Energy Center nuclear facility to FPLE Duane Arnold, Inc., a subsidiary of Florida Power and Light.

**PUBLICATIONS AND REPORTS**

Hausman, E., Review of AltaGas' Climate Business Plan and Renewable Natural Gas Study. Technical report prepared on behalf of the Sierra Club, June 2020.

Hausman, E., The Worst of Both Worlds: Why the Ohio Legislature's OVEC Bailout Bill would Harm Consumers, Impede Competition, Increase Pollution, and Impair the Health and Welfare of Ohioans for Decades. White paper produced on behalf of The Sierra Club, June 2017.

Hausman, E., Risks and Opportunities for PacifiCorp - State Level Findings: Utah, Produced on behalf of the Sierra Club, October 2014.

Hausman, E., Risks and Opportunities for PacifiCorp - State Level Findings: Oregon, Produced on behalf of the Sierra Club, October 2014.

Hausman, E., Risks and Opportunities for PacifiCorp in a Carbon Constrained Economy, Produced on behalf of the Sierra Club, October 2014.

Luckow, P., E. Stanton, B. Biewald, J. Fisher, F. Ackerman, E. Hausman, 2013 Carbon Dioxide Price Forecast, Synapse Energy Economics, November 2013.

Stanton, E., T. Comings, K. Takahashi, P. Knight, T. Vitolo, E. Hausman, Economic Impacts of the NRDC Carbon Standard: Background Report prepared for the Natural Resources Defense Council, Synapse Energy Economics for NRDC, June 2013

Comings T., P. Knight, E. Hausman, Midwest Generation's Illinois Coal Plants: Too Expensive to Compete? (Report Update) Synapse Energy Economics for Sierra Club, April 2013

- Stanton E., F. Ackerman, T. Comings, P. Knight, T. Vitolo, E. Hausman, Will LNG Exports Benefit the United States Economy? Synapse Energy Economics for Sierra Club, January 2013
- Chang M., D. White, E. Hausman, Risks to Ratepayers: An Examination of the Proposed William States Lee III Nuclear Generation Station, and the Implications of “Early Cost Recovery” Legislation, Synapse Energy Economics for Consumers Against Rate Hikes, December 2012
- Wilson R., P. Luckow, B. Biewald, F. Ackerman, and E.D. Hausman, 2012 Carbon Dioxide Price Forecast, Synapse Energy Economics, October 2012.
- Fagan B., M. Chang, P. Knight, M. Schultz, T. Comings, E.D. Hausman, and R. Wilson, The Potential Rate Effects of Wind Energy and Transmission in the Midwest ISO Region. Synapse Energy Economics for Energy Future Coalition, May 2012.
- Hausman, E.D., T. Comings, “Midwest Generation's Illinois Coal Plants: Too Expensive to Compete? Synapse Energy Economics for Sierra Club, April 2012.
- Hausman, E.D., T. Comings, and G. Keith, Maximizing Benefits: Recommendations for Meeting Long-Term Demand for Standard Offer Service in Maryland. Synapse Energy Economics for Sierra Club, January 2012.
- Keith G., B. Biewald, E.D. Hausman, K. Takahashi, T. Vitolo, T. Comings, and P. Knight, Toward a Sustainable Future for the U.S. Power Sector: Beyond Business as Usual 2011 Synapse Energy Economics for Civil Society Institute, November 2011.
- Chang M., D. White, E.D. Hausman, N. Hughes, and B. Biewald, Big Risks, Better Alternatives: An Examination of Two Nuclear Energy Projects in the U.S. Synapse Energy Economics for Union of Concerned Scientists, October 2011.
- Hausman E.D., T. Comings, K. Takahashi, R. Wilson, and W. Steinhurst, Electricity Scenario Analysis for the Vermont Comprehensive Energy Plan 2011. Synapse Energy Economics for Vermont Department of Public Service, September 2011.
- Wittenstein M., E.D. Hausman, Incenting the Old, Preventing the New: Flaws in Capacity Market Design, and Recommendations for Improvement. Synapse Energy Economics for American Public Power Association, June 2011.
- Johnston L., E.D. Hausman, B. Biewald, R. Wilson, and D. White. 2011 Carbon Dioxide Price Forecast. Synapse Energy Economics White Paper, February 2011.
- Hausman E.D., V. Sabodash, N. Hughes, and J. I. Fisher, Economic Impact Analysis of New Mexico's Greenhouse Gas Emissions Rule. Synapse Energy Economics for New Energy Economy, February 2011.
- Hausman E.D., J. Fisher, L. Mancinelli, and B. Biewald. Productive and Unproductive Costs of CO2 Cap-and-Trade: Impacts on Electricity Consumers and Producers. Synapse Energy Economics for National Association of Regulatory Utility Commissioners, National Association of State Utility Consumer Advocates, National Rural Electric Cooperative Association, and American Public Power Association, July 2009.

- Peterson P., E. Hausman, R. Fagan, and V. Sabodash, Report to the Ohio Office of Consumer Counsel, on the value of continued participation in RTOs. Filed under Ohio PUC Case No. 09-90-EL-COI, May 2009.
- Schlissel D., L. Johnston, B. Biewald, D. White, E. Hausman, C. James, and J. Fisher, Synapse 2008 CO2 Price Forecasts. July 2008.
- Hausman E.D., J. Fisher and B. Biewald, Analysis of Indirect Emissions Benefits of Wind, Landfill Gas, and Municipal Solid Waste Generation. Synapse Energy Economics Report to the Air Pollution Prevention and Control Division, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, July 2008.
- Hausman E.D. and C. James, Cap and Trade CO2 Regulation: Efficient Mitigation or a Give-away? Synapse Energy Economics presentation to the ELCON Spring Workshop, June 2008.
- Hausman E.D., R. Hornby and A. Smith, Bilateral Contracting in Deregulated Electricity Markets. Synapse Energy Economics for the American Public Power Association, April 2008.
- Hausman E.D., R. Fagan, D. White, K. Takahashi and A. Napoleon, LMP Electricity Markets: Market Operations, Market Power and Value for Consumers. Synapse Energy Economics for the American Public Power Association's Electricity Market Reform Initiative (EMRI) symposium, "Assessing Restructured Electricity Markets" in Washington, DC, February 2007.
- Hausman E.D. and K. Takahashi, The Proposed Broadwater LNG Import Terminal Response to Draft Environmental Impact Statement and Update of Synapse Analysis. Synapse Energy Economics for the Connecticut Fund for the Environment and Save The Sound, January 2007.
- Hausman E.D., K. Takahashi, D. Schlissel and B. Biewald, The Proposed Broadwater LNG Import Terminal: An Analysis and Assessment of Alternatives. Synapse Energy Economics for the Connecticut Fund for the Environment and Save The Sound, March 2006.
- Hausman E.D., P. Peterson, D. White and B. Biewald, RPM 2006: Windfall Profits for Existing Base Load Units in PJM: An Update of Two Case Studies. Synapse Energy Economics for the Pennsylvania Office of Consumer Advocate and the Illinois Citizens Utility Board, February 2006.
- Hausman E.D., K. Takahashi, and B. Biewald, The Glebe Mountain Wind Energy Project: Assessment of Project Benefits for Vermont and the New England Region. Synapse Energy Economics for Glebe Mountain Wind Energy, LLC., February 2006.
- Hausman E.D., K. Takahashi, and B. Biewald, The Deerfield Wind Project: Assessment of the Need for Power and the Economic and Environmental Attributes of the Project. Synapse Energy Economics for Deerfield Wind, LLC., January 2006.
- Hausman E.D., P. Peterson, D. White and B. Biewald, An RPM Case Study: Higher Costs for Consumers, Windfall Profits for Exelon. Synapse Energy Economics for the Illinois Citizens Utility Board, October 2005.

Hausman E.D. and G. Keith, Calculating Displaced Emissions from Energy Efficiency and Renewable Energy Initiatives. Synapse Energy Economics for EPA website 2005

Rudkevich A., E.D. Hausman, R.D. Tabors, J. Bagnal and C Kopel, Loss Hedging Rights: A Final Piece in the LMP Puzzle. Hawaii International Conference on System Sciences, Hawaii, January, 2005 (accepted).

Hausman E.D. and R.D. Tabors, The Role of Demand Underscheduling in the California Energy Crisis. Hawaii International Conference on System Sciences, Hawaii, January 2004.

Hausman E.D. and M.B. McElroy, The reorganization of the global carbon cycle at the last glacial termination. *Global Biogeochemical Cycles*, 13(2), 371-381, 1999.

Norton F.L., E.D. Hausman and M.B. McElroy, Hydrospheric transports, the oxygen isotope record, and tropical sea surface temperatures during the last glacial maximum. *Paleoceanography*, 12, 15-22, 1997.

Hausman E.D. and M.B. McElroy, Variations in the oceanic carbon cycle over glacial transitions: a time-dependent box model simulation. Presented at the spring meeting of the American Geophysical Union, San Francisco, 1996.

## **PRESENTATIONS AND WORKSHOPS**

***American Public Power Association:*** Invited expert participant in APPA's roundtable discussion of the current state of the RTO-operated electricity markets. October 2013.

***California Long-Term Resource Adequacy Summit*** (Sponsored by the California ISO and the California Public Utility Commission): Panelist on "Applying Alternative Models to the California Market Construct." February 26, 2013.

***ELCON 2011 Fall Workshop:*** "Do RTOs Need a Capacity Market?" October 2011.

***Harvard Electricity Policy Group:*** Presentation on state action to ensure reliability in the face of capacity market failure. February 2011.

***NASUCA 2010 Annual Conference:*** "Addressing Climate Change while Protecting Consumers." November 2010.

***NASUCA Consumer Protection Committee:*** Briefing on the Synapse report entitled, "Productive and Unproductive Costs of CO<sub>2</sub> Cap-and-Trade." September 2009.

***NARUC 2009 Summer Meeting:*** Invited speaker on topic: "Productive and Unproductive Costs of CO<sub>2</sub> Cap-and-Trade." July, 2009.

***NASUCA 2008 Mid-Year Meeting:*** Invited speaker on the topic, "Protecting Consumers in a Warming World, Part II: Deregulated Markets." June 2008.

***Center for Climate Strategies:*** Facilitator and expert analyst on state-level policy options for mitigating greenhouse gas emissions. Serve as facilitator/expert for the Electricity Supply (ES) and Residential, Commercial and Industrial (RCI) Policy Working Groups in the states of Colorado and South Carolina. 2007-2008.



**NASUCA 2007 Mid-Year Meeting:** Invited speaker on the topic, “Protecting Consumers in a Warming World” June 2007.

**ASHRAE Workshop on estimating greenhouse gas emissions from buildings in the design phase:** Participant expert on estimating displaced emissions associated with energy efficiency in building design. Also hired by ASHRAE to document and produce a report on the workshop. April, 2007.

**Assessing Restructured Electricity Markets An American Public Power Association Symposium:** Invited speaker on the history and effectiveness of Locational Marginal Pricing (LMP) in northeastern United States electricity markets, February, 2007.

**ASPO-USA 2006 National Conference:** Invited speaker and panelist on the future role of LNG in the U.S. natural gas market, October, 2006.

**Market Design Working Group:** Participant in FERC-sponsored settlement process for designing capacity market structure for PJM on behalf of coalition of state utility consumer advocates, July-August 2006.

**NASUCA 2006 Mid-Year Meeting:** Invited speaker on the topic, “How Can Consumer Advocates Deal with Soaring Energy Prices?” June 2006.

**Soundwaters Forum, Stamford, CT:** Participated in a debate on the need for proposed Broadwater LNG terminal in Long Island Sound, June 2006.

**Energy Modeling Forum:** Participant in coordinated academic exercise focused on modeling US and world natural gas markets, December 2004.

**Massachusetts Institute of Technology (MIT):** Guest lecturer in Technology and Policy Program on electricity market structure, the LMP pricing system and risk hedging with FTRs. 2002-2005.

**LMP: The Ultimate Hands-On Seminar.** Two-day seminar held at various sites to explore concepts of LMP pricing and congestion risk hedging, including lecture and market simulation exercises. Custom seminars held for FERC staff, ERCOT staff, and various industry groups. 2003-2004.

**Learning to Live with Locational Marginal Pricing: Fundamentals and Hands-On Simulation.** Day-long seminar including on-line mock electricity market and congestion rights auction, December 2002.

**LMP in California.** Led a series of seminars on the introduction of LMP in the California electricity market, including on-line market simulation exercise. 2002.

Resume updated November 2021