

AUSTIN ENERGY'S TARIFF PACKAGE: §  
UPDATE OF THE 2009 COST OF §  
SERVICE STUDY AND PROPOSAL TO §  
CHANGE BASE ELECTRIC RATES §

BEFORE THE CITY OF AUSTIN  
IMPARTIAL HEARING EXAMINER

DIRECT TESTIMONY

OF

PAUL CHERNICK

RESOURCE INSIGHT, INC.

AUSTIN ENERGY

2016 MAY 31 AM 8:54

ON BEHALF OF SIERRA CLUB AND PUBLIC CITIZEN

MAY 27, 2016

(Supplementing Corrected Position Statement/Presentation on the Issues)

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Exhibit PLC-1	<i>Professional Qualifications of Paul Chernick</i>
Exhibit PLC-2	<i>Prior Testimony Before the Texas PUC</i>

1    **I.    Identification and Qualifications**

2    **Q:    Please state your name, occupation and business address.**

3    A:    I am Paul L. Chernick. I am the president of Resource Insight, Incorporated,  
4           located at 5 Water Street, Arlington, Massachusetts.

5    **Q:    Summarize your professional education and experience.**

6    A:    In June 1974, I received a Bachelor of Science degree from the  
7           Massachusetts Institute of Technology from the Civil Engineering  
8           Department. In February 1978 I received a Master of Science degree in  
9           Technology and Policy from the Massachusetts Institute of Technology.

10           I was a utility analyst for the Massachusetts Attorney General for more  
11           than three years, and was involved in numerous aspects of utility rate design,  
12           costing, load forecasting, and the evaluation of power supply options. Since  
13           1981, I have worked as a consultant in utility regulation and planning. From  
14           1981 to 1986 worked as a research associate at Analysis and Inference. In  
15           1986, I founded and became president of PLC, Incorporated, which was  
16           renamed Resource Insight, Incorporated in 1990. In these capacities, I have  
17           advised a variety of clients on utility matters.

18           My work has considered, among other things, the cost-effectiveness of  
19           prospective new generation plants and transmission lines, retrospective  
20           review of generation-planning decisions, ratemaking for plants under  
21           construction, ratemaking for excess and/or uneconomical investments  
22           entering service, conservation program design, cost recovery for utility  
23           efficiency programs, the valuation of environmental externalities from energy  
24           production and use, allocation of costs of service between rate classes and  
25           jurisdictions, design of retail and wholesale rates, and performance-based

1       ratemaking and cost recovery in restructured gas and electric industries. My  
2       professional qualifications are further described in Exhibit PLC-1.

3       **Q: Have you testified previously in utility proceedings?**

4       A: Yes. I have testified as an expert over three hundred times on utility issues  
5       before various regulatory, legislative, and judicial bodies, including utility  
6       regulators in thirty-three states, six Canadian provinces, and two U.S. Federal  
7       agencies. A large number of those cases involved power supply planning,  
8       cost allocation and rate design. My previous testimony before the Public  
9       Utilities Commission of Texas is listed in Exhibit PLC-2.

10      **Q: Do you have any experience with Austin Energy?**

11      A: Yes. I was the Consumer Advocate for the City Council's review of the  
12      Austin Energy rate proposal.

## 13      **II. Introduction**

14      **Q: On whose behalf are you testifying in this rate case proceeding?**

15      A: I am testifying on behalf of Public Citizen and Sierra Club.

16      **Q: What issues do you cover?**

17      A: I address four issues:

- 18       • The allocation of generation costs.
- 19       • The setting of fixed customer charges.
- 20       • Residential rate design, including the tiered energy rate and the form of  
21       the discount for customers outside the city.
- 22       • Preparation for the retirement of Austin Energy's portions of Fayette  
23       units 1 and 2.

1    **III. Allocation of Generation Costs**

2    **Q: How does Austin Energy propose to allocate the fixed costs of its fossil**  
3    **generation plants?**

4    A: Austin Energy proposes to allocate the fixed generation costs on the average  
5    of class contributions to 12 monthly coincident peaks (12CP).<sup>1</sup> In the past,  
6    parties have also suggested that those costs be allocated on the average-and-  
7    excess demand allocator (AED) using the average of four summer peaks  
8    (AED/4CP).

9    **Q: Is either of these allocation approaches appropriate?**

10   A: No. The 12CP method assumes that the fixed costs of Austin Energy's  
11   generators are exclusively driven by Austin Energy's monthly peak exposure.  
12   The AED/4CP approach goes further, assuming that only the four summer  
13   peaks matter in determining the fixed generation costs.

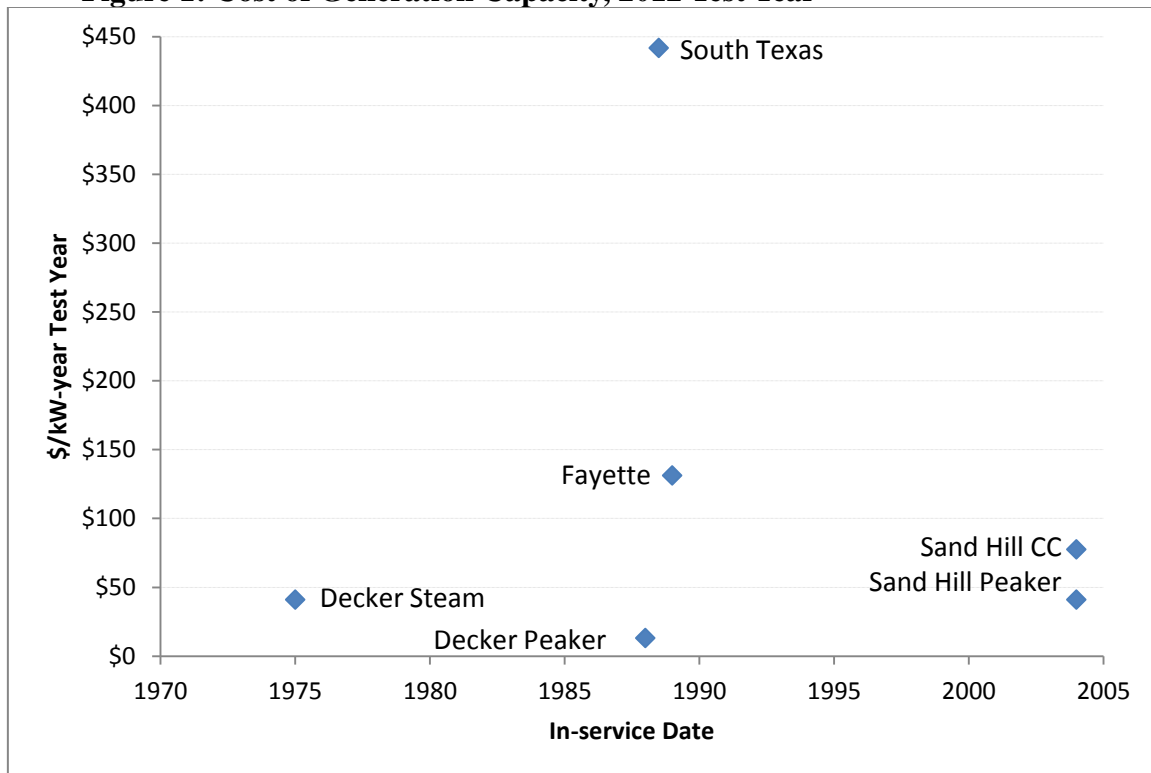
14            In reality, the *amount* of capacity needed for reliable supply depends on  
15   the highest loads, both in the high-load months (the summer, for ERCOT)  
16   and in lower-load months when tight power supply may arise from  
17   maintenance outages, weather-related malfunctions and random equipment  
18   failures. ERCOT has experienced Energy Emergency Alerts in the winter (I  
19   have found examples in January, February and March, and there may be  
20   more), as well as the summer.

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<sup>1</sup> In this context, fixed costs are all the costs that do not vary with output during the year. The non-fixed generation costs include fuel and consumables, such as the limestone used in the Fayette scrubbers. Some O&M and interim capital replacements that vary with the usage of the plant should also be treated as energy-related (just as the cost of oil changes is a function of mileage driven), but these costs are not generally disaggregated in cost of service studies.

But the cost of the capacity is determined in large part by annual energy requirements. As shown in Figure 1, South Texas and Fayette were much more expensive than the contemporaneous Decker peakers, the Decker steam plants are more expensive than the Decker peakers (even though those were built over a decade later) and the Sand Hill combined-cycle cost about twice as much as the Sand Hill peakers.<sup>2</sup>

**Figure 1: Cost of Generation Capacity, 2012 Test Year**



Clearly, Austin Energy invested more for South Texas, Fayette and the combined-cycle plant to reap the benefits of their lower fuel costs, to serve Austin Energy's large annual energy requirement. Since the lower fuel cost is

<sup>2</sup> A similar pattern is apparent in the operating costs per kilowatt: nuclear O&M is very high, coal O&M is lower, and the costs of gas units are much lower, with combustion turbine peakers at the low end of the range.

1 allocated among classes on the basis of energy use, the higher capital costs  
2 should follow a similar allocator.

3 **Q: How should this reality be reflected in cost allocation?**

4 A: Several methodologies have been developed to recognize the contribution of  
5 energy requirements and non-peak hours to the cost of generation resources,  
6 including:

- 7 • Identification of the extra costs of each resource incurred for fuel-price  
8 reduction, and allocation of those costs on energy (the peaker method).
- 9 • Determination of which resources operate in each hour (or larger blocks  
10 of time) and allocation of the costs of the units operating in each hour in  
11 proportion to class loads in each period (the probability of dispatch  
12 method).
- 13 • Sub-functionalization of the generation resources into usage categories  
14 (typically, base, intermediate and peak) and allocation of each category  
15 on an appropriate allocator, such as energy for baseload plant, daily  
16 peak hours (e.g., 7 AM to 11 PM) for intermediate resources, and peak  
17 loads (e.g., 12CP) for peakers (the base-intermediate-peak or BIP  
18 method).

19 Proper application of any of these three methods reflects the cost  
20 causation for fixed generation costs.

21 Other jurisdictions recognize the reality of energy-driven power-plant  
22 capital investment and fixed operating costs in a more generic manner, by  
23 allocating a portion (frequently the system load factor) of total fixed costs on  
24 energy and the remainder on some demand allocator. The average-and-peak  
25 approach does not reflect the actual fuel-saving investment and thus typically

1 understates the energy-related portion of generation systems with large shares  
2 of nuclear or coal capacity.

3 Any of these approaches is more equitable than the 12CP and AED  
4 approach.

5 **Q: Have you estimated the portion of Austin Energy's generation**  
6 **investment that is driven by peak loads, rather than energy?**

7 A: Yes. I compared the 2012 costs of the South Texas, Fayette and Decker  
8 steam plant to the cost of the Decker peakers and the cost of the Sand Hill  
9 combined-cycle to the Sand Hill peakers, and produced the estimates of the  
10 shares of costs attributable to providing peak reliability shown in Table 1.

11 **Table 1: Demand-Related Portion of Austin Energy Generation Rate Base**

	ISD	MW	\$/kW	Attributable to Demand
South Texas	1989	400	\$442	3%
Fayette	1989	600	\$131	10%
Decker Steam	1975	730	\$41	32%
Sand Hill CC	2004	385	\$78	53%
Decker Peakers	1988	200	\$13	100%
Sand Hill Peakers	2004	270	\$41	100%
Total		2,585	\$127	16%

12 Those, 84% of total generation rate base is energy-related. The O&M  
13 fraction is probably even higher.

14 **Q: How should the costs of renewable energy be classified?**

15 A: The costs of wind and solar are almost all energy-driven, and Austin Energy  
16 classifies them to energy.<sup>3</sup>

17 **Q: What is your recommendation on this issue?**

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<sup>3</sup> It is my understanding that Austin Energy recovers the costs of its renewable contracts through the Power Supply Adjustment, so those costs are not directly part of this proposed rate case.



1 A: The fixed costs of Austin Energy generation should be classified and/or  
2 allocated in a manner that recognizes that the vast majority of that investment  
3 is driven by energy, not peak demands.

#### 4 IV. Residential Rate Design

##### 5 A. Tiered Energy Rate

6 Q: Have you reviewed Austin Energy's proposal to flatten Austin Energy's  
7 five-tiered in-city rates?

8 A: Yes, I am aware that Austin Energy is proposing to make two major changes  
9 in Austin's five-tier rate design. First, Austin Energy proposes to eliminate  
10 the separate summer and winter energy rates.<sup>4</sup> Second, Austin Energy  
11 proposes to flatten the tiers by raising the first tier (0–500 kWh) 40% on an  
12 annual average basis, while substantially decreasing the highest three tiers.

13 **Table 2: Proposed Change in Residential In-City Energy Tiers**

	Existing Base Rates			Proposed	Change
	Summer	Winter	Sales-Wtd.		
0–500	\$0.033	\$0.018	\$0.024	\$0.033	40%
501–1,000	\$0.080	\$0.056	\$0.068	\$0.056	-17%
1,000–1,500	\$0.091	\$0.072	\$0.083	\$0.076	-9%
1,500–2,500	\$0.110	\$0.084	\$0.100	\$0.091	-9%
>2,500	\$0.114	\$0.096	\$0.107	\$0.106	-1%
Average 0–1,000			\$0.039	\$0.041	5%

14 The average energy rate for a customer using 1,000 kWh would rise  
15 5%, but the rate for 500–1,000 kWh (the tailblock for these customers),  
16 which provides the incentive to conserve, would fall 17%. Bills would be  
17 higher, but the incentive to conserve would decline. The vast majority of

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<sup>4</sup> The Power Supply Adjustment would retain very modest seasonality.

1 econometric analyses indicate that consumers respond to their tailblock  
2 energy rates.

3 **Q: Are these changes warranted?**

4 A: No. Elimination of the seasonal differentiation is counter-intuitive, since the  
5 majority of Austin Energy's transmission and distribution costs appear to be  
6 driven by summer loads, including peak loads on Austin Energy equipment  
7 and the day-long and multi-day loads that build up heat, requiring larger  
8 transformers and conductors and resulting in more failure.

9 The decrease in the revenue requirement should be spread more evenly  
10 through the tiers, to maintain conservation incentives.

11 **Q: What are your recommendations on this issue?**

12 A: Austin Energy should maintain some differential between summer and winter  
13 rates. In addition, the rates in each block (averaged across summer and  
14 winter) should be reduced by approximately the same percentage to reflect  
15 the overall reduction in target revenue.

16 **B. Fixed Customer Charges**

17 **Q: What is Austin Energy's proposal for the fixed customer charge in the**  
18 **residential rate design?**

19 A: Austin Energy proposes to retain the existing \$10/month charge.

20 **Q: Is this appropriate?**

21 A: The \$10 customer charge appears to be reasonable for most residential  
22 customers. The Austin Energy cost of service study (Schedule G-8) indicates  
23 that the allocated average customer-related cost for residential customers is  
24 \$21.68/month, but this estimate is clearly overstated. This total includes the  
25 cost of the average residential meter, a number of costs allocated on among

1 classes on unweighted customer number (Customer Accounting, Customer  
2 Service, Meter Reading), and uncollectible bills, all averaged across all  
3 residential customers. Several of these items are over-allocated to the  
4 residential class and/or to the customer charge, which should reflect only the  
5 costs imposed by the smallest customers.

6 Customer accounting, customer service and meter reading are probably  
7 all higher per customer for non-residential customers with more complex  
8 metering and billing.<sup>5</sup> Customers with higher bills are also more likely to  
9 contact Austin Energy more frequently, with more complex questions about  
10 their bills, service and other issues; this effect would both increase the non-  
11 residential share of customer service costs and reduce the customer-service  
12 costs attributable to the minimal customer. After all, a customer using 200  
13 kWh monthly is not likely to spend as much time on the phone with Austin  
14 Energy as a customer using 2,000 kWh or 20,000 kWh.

15 Uncollectibles probably also vary with the size of the residential  
16 customer. A 200-kWh customer is unlikely to run up a bill as large as a 2,000  
17 kWh customer; Austin Energy is exposed to larger bad debt from the larger  
18 customers.

19 All the size-related costs should be recovered through the energy  
20 charge.

21 **Q: Is any disaggregation of the customer charge warranted within the**  
22 **residential class?**

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<sup>5</sup> In addition, the distance between meters is likely to be greater for large commercial and industrial customers than for even single-family residential customers, requiring more meter-reader time per reading.

1 A: Yes. Customers in multi-family buildings probably require even less meter-  
2 reading time than single-family residential; the diversification of loads on  
3 services, transformers and some lines and the generally higher density of load  
4 would further reduce demand-related costs. A discount in the customer  
5 charge for apartments would reflect these cost differential. Until Austin  
6 Energy does a more complete analysis of the cost differentials, it would be  
7 reasonable to customers in multi-family buildings a customer charge a few  
8 dollars lower than the charge assessed on single-family residences.

9 **V. Rate Discounts Outside the City**

10 **Q: What comments do you have on rate discounts for customers outside the**  
11 **city limits?**

12 A: I have not reviewed the rationale for the magnitude of the discount as a  
13 percent of total bills, and will not comment on that issue. Regardless of the  
14 size of the discount, the design of the rates outside the city should maintain  
15 the conservation incentives.

16 Austin Energy's proposed rates would continue the existing practice of  
17 concentrating the out-of-city discount on the highest energy blocks,  
18 significantly reducing the conservation incentive for large residential  
19 customers. The magnitude of the discounts is shown in Table 3.

20 **Table 3: Austin Energy Proposed Discounts for Out-of-City Residential Rates**

	In City	Out of City	Discount
Customer charge	\$10	\$10	0%
0-500 kWh	\$0.03300	\$0.03800	15%
501-1,000 kWh	\$0.05600	\$0.05600	0%
1,000-1,500 kWh	\$0.07595	\$0.07815	3%
1,500-2,500 kWh	\$0.09100	\$0.07815	-14%
>2,500 kWh	\$0.10595	\$0.07815	-26%

1           Given Austin Energy’s projection of the pattern of out-of-city usage, the  
2           average discount is only 6.7%, but the tailblock rates that are most important  
3           in promoting conservation are discounted much more deeply.

4   **Q: What would be a more sensible approach for determining the discounts**  
5   **for out-of-city residential customers?**

6   A: If the 6.7% discount is determined to be appropriate, it should be spread  
7       more uniformly through the rate structure. Ideally, the customer charge and  
8       first 1,500 kWh would receive the average discount, and usage over 1,500  
9       kWh should be priced higher than usage in the 1,000–1,500 kWh range, to  
10      retain the incentive structure.

## 11   **VI. Fayette Costs**

12   **Q: What is your concern about the recovery of the costs of Austin Energy’s**  
13   **share of units 1 and 2 of the Fayette coal plant?**

14   A: Austin Energy and the City Council have committed to ending Austin  
15       Energy’s involvement in the Fayette project “as soon as legally, economically  
16       and technologically possible.” (Austin Energy Resource, Generation and  
17       Climate Protection Plan to 2025: An Update of the 2020 Plan,” page 7). That  
18       Plan projects that Austin Energy would stop using 235 MW of Fayette 2020  
19       and the remaining 367 MW would be retired in 2023.<sup>6</sup>

20           Before the City Council made this commitment, Austin Energy must  
21       have expected to continue using Fayette (and the scrubbers added about  
22       2010, which comprise most of the net plant) for many years. At the current

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<sup>6</sup> The Plan Update says it “establishes a process for ending the use of coal by starting the retirement of Austin Energy’s share of the Fayette Power Project by the end of 2022.”

1 depreciation rate, Austin Energy customers would continue paying for the  
2 capital costs of Fayette through about 2030. I have not been able to determine  
3 when the bonds issued to finance the scrubbers will be fully paid off.<sup>7</sup>

4 Unless something changes in the meantime, Austin Energy will stop  
5 receiving energy and capacity from Fayette in the early 2020s, but will  
6 continue paying for the plant for several more years. At the same time, Austin  
7 Energy will be paying for the replacement energy resources, either through  
8 purchased-power contracts or directly for the capital costs.

9 Austin Energy's response to Public Citizen/Sierra Club 2-1 indicates  
10 that Austin Energy expected in December 2014 that it would fund Fayette  
11 debt defeasement at a rate of about \$47 million annually for 2019 through  
12 2022. Unless Austin Energy is planning another rate review in 2018 to allow  
13 it to collect those funds, this is likely to be the last opportunity to accumulate  
14 those funds.

15 **Q: How does Austin Energy propose to deal with this issue?**

16 A: Oddly, Austin Energy seems to be ignoring its commitment (and that of the  
17 City) to the early termination of its use of Fayette.

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<sup>7</sup> Austin Energy may be able to repurpose that debt to finance the renewables that will replace Fayette. I have not found any specific reference to any of Austin Energy's debt issuances as being contractually tied to ownership of Fayette; Austin Energy does not seem to provide much information about its bonds in its annual reports or on its web site; some information about call dates and final retirement schedules is provided in ALIC RFI Set 4.

1 To date, City Council has not approved a definitive date for closing the  
2 FPP. Additionally, any decision on FPP would be subject to the City's  
3 affordability goals. Moreover, FPP Units 1 and 2 are jointly owned with  
4 the Lower Colorado River Authority ("LCRA") and operated by the  
5 LCRA. Therefore, neither AE, nor the City Council, has the authority to  
6 decommission the facility without cooperation from LCRA. For these  
7 reasons, it is premature to develop a defeasement fund at this time and  
8 the adjustment does not meet the known and measureable criteria.  
9 (Dombroski Rebuttal at 22–23)

10 **Q: Is Austin Energy's position reasonable?**

11 A: No. The Austin City Council has clearly created an expectation through  
12 approval of the 2025 Generation Plan that Austin Energy should plan to stop  
13 using the plant in 2022, though challenges do remain. The exact retirement  
14 date for a generator is rarely known until the last year or so of its life (and  
15 sometimes not until after it has stopped generating power). Despite this  
16 uncertainty, utilities attempt to recover the plant investments over the  
17 estimated remaining life of the equipment, and update the depreciation rates  
18 as new data on investments and retirement dates become available.

19 Similarly, it is not clear how Austin Energy will divest itself from  
20 Fayette. That divestiture could be effected through such mechanisms as the  
21 following:

- 22 • Agreement with LCRA to retire both units.
- 23 • Agreement to swap entitlements with LCRA and retire the unit  
24 then owned by Austin Energy.

25 Other arrangements may also be developed.

26 In any case, Austin Energy will no longer have a Fayette power-supply  
27 entitlement. Once that occurs, any remaining Fayette capital costs will be a  
28 deadweight burden on Austin Energy ratepayers.

1   **Q: How do affordability goals affect the prudence of accelerating the**  
2   **recovery of the Fayette investment?**

3   A: Delaying the write-down of the Fayette investment would exacerbate any  
4   affordability issues in the early 2020s, since Austin Energy would be  
5   recovering Fayette costs at the same time it would be acquiring new  
6   resources. Austin Energy might also need to recover the remaining Fayette  
7   costs over fewer years; recovering all the costs from Public Citizen/Sierra  
8   Club 2-1 in 2021 and 2022 would push Austin Energy's projected rate  
9   increases to the limits of its affordability guidelines. An overhang of  
10   undepreciated Fayette costs could create a poison pill preventing Austin  
11   Energy and the City from complying with its carbon-reduction goals.  
12   Reducing the rate decrease in this proceeding to start the recovery of excess  
13   Fayette costs would help preserve later affordability.

14   **Q: What do you recommend with regard to this issue?**

15   A: The Council should require Austin Energy to accelerate the recovery of  
16   Fayette's remaining capital cost, with the goal of fully paying off the capital  
17   investment by the end of 2022. Since this may well be the last rate review  
18   prior to the planned retirement of the first portion of Fayette in 2020, this  
19   may be the Council's last opportunity to mitigate this problem.

20         I have no recommendation regarding the accounting treatment of the  
21   accelerated cost recovery, which could take the form of increased  
22   depreciation, an unrestricted decommissioning reserve (which might be  
23   assigned between Fayette and Decker, as needed), a dedicated bond  
24   defeasement fund, or some other account. The important consideration is that  
25   the money be available to support the elimination of Austin's share of  
26   Fayette, when it is needed.



1    **Q: Does this conclude your testimony?**

2    A: Yes.

## PAUL L. CHERNICK

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### SUMMARY OF PROFESSIONAL EXPERIENCE

- 1986–Present* **President, Resource Insight, Inc.** Consults and testifies in utility and insurance economics. Reviews utility supply-planning processes and outcomes: assesses prudence of prior power planning investment decisions, identifies excess generating capacity, analyzes effects of power-pool-pricing rules on equity and utility incentives. Reviews electric-utility rate design. Estimates magnitude and cost of future load growth. Designs and evaluates conservation programs for electric, natural-gas, and water utilities, including hook-up charges and conservation cost recovery mechanisms. Determines avoided costs due to cogenerators. Evaluates cogeneration rate risk. Negotiates cogeneration contracts. Reviews management and pricing of district heating systems. Determines fair profit margins for automobile and workers' compensation insurance lines, incorporating reward for risk, return on investments, and tax effects. Determines profitability of transportation services. Advises regulatory commissions in least-cost planning, rate design, and cost allocation.
- 1981–86* **Research Associate, Analysis and Inference, Inc.** (Consultant, 1980–81). Researched, advised, and testified in various aspects of utility and insurance regulation. Designed self-insurance pool for nuclear decommissioning; estimated probability and cost of insurable events, and rate levels; assessed alternative rate designs. Projected nuclear power plant construction, operation, and decommissioning costs. Assessed reasonableness of earlier estimates of nuclear power plant construction schedules and costs. Reviewed prudence of utility construction decisions. Consulted on utility rate-design issues, including small-power-producer rates; retail natural-gas rates; public-agency electric rates, and comprehensive electric-rate design for a regional power agency. Developed electricity cost allocations between customer classes. Reviewed district-heating-system efficiency. Proposed power-plant performance standards. Analyzed auto-insurance profit requirements. Designed utility-financed, decentralized conservation program. Analyzed cost-effectiveness of transmission lines.
- 1977–81* **Utility Rate Analyst, Massachusetts Attorney General.** Analyzed utility filings and prepared alternative proposals. Participated in rate negotiations, discovery, cross-examination, and briefing. Provided extensive expert testimony before various regulatory agencies. Topics included demand forecasting, rate design, marginal costs, time-of-use rates, reliability issues, power-pool operations, nuclear-power cost projections, power-plant cost-benefit analysis, energy conservation, and alternative-energy development.

## EDUCATION

SM, Technology and Policy Program, Massachusetts Institute of Technology, February 1978.

SB, Civil Engineering Department, Massachusetts Institute of Technology, June 1974.

## HONORS

Chi Epsilon (Civil Engineering)

Tau Beta Pi (Engineering)

Sigma Xi (Research)

Institute Award, Institute of Public Utilities, 1981.

## PUBLICATIONS

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“Review of the Elizabethtown Gas Company’s 1992 DSM Plan and the Demand-Side Management Rules” (with Jonathan Wallach, John Plunkett, James Peters, Susan Geller, Blair Hamilton, and Andrew Shapiro). 1992. Report to the New Jersey Department of Public Advocate.

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“Review of Jersey Central Power & Light’s 1992 DSM Plan and the Demand-Side Management Rules” (with Jonathan Wallach et al.); Report to the New Jersey Department of Public Advocate, June 1992.

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“Power by Efficiency: An Assessment of Improving Electrical Efficiency to Meet Jamaica’s Power Needs,” (with Conservation Law Foundation, et al.), June 1990.

“Analysis of Fuel Substitution as an Electric Conservation Option,” (with Ian Goodman and Eric Espenhorst), Boston Gas Company, December 22 1989.

“The Development of Consistent Estimates of Avoided Costs for Boston Gas Company, Boston Edison Company, and Massachusetts Electric Company” (with Eric Espenhorst), Boston Gas Company, December 22 1989.

“The Valuation of Externalities from Energy Production, Delivery, and Use: Fall 1989 Update” (with Emily Caverhill), Boston Gas Company, December 22 1989.

“Conservation Potential in the State of Minnesota,” (with Ian Goodman) Minnesota Department of Public Service, June 16 1988.

“Review of NEPOOL Performance Incentive Program,” Massachusetts Energy Facilities Siting Council, April 12 1988.

“Application of the DPU’s Used-and-Useful Standard to Pilgrim 1” (With C. Wills and M. Meyer), Massachusetts Executive Office of Energy Resources, October 1987.

“Constructing a Supply Curve for Conservation: An Initial Examination of Issues and Methods,” Massachusetts Energy Facilities Siting Council, June 1985.

“Final Report: Rate Design Analysis,” Pacific Northwest Electric Power and Conservation Planning Council, December 18 1981.

## **PRESENTATIONS**

“Rethinking Utility Rate Design—Retail Demand and Energy Charges,” Solar Power PV Conference, Boston MA, February 24, 2016.

“Residential Demand Charges - Load Effects, Fairness & Rate Design Implications.” Web seminar sponsored by the NixTheFix Forum. September 2015.

“The Value of Demand Reduction Induced Price Effects.” With Chris Neme. Web seminar sponsored by the Regulatory Assistance Project. March 2015.

“Adding Transmission into New York City: Needs, Benefits, and Obstacles.” Presentation to FERC and the New York ISO on behalf of the City of New York. October 2004.

“Plugging Into a Municipal Light Plant.” With Peter Enrich and Ken Barna. Panel presentation as part of the 2004 Annual Meeting of the Massachusetts Municipal Association. January 2004.

“Distributed Utility Planning.” With Steve Litkovitz. Presentation to the Vermont Distributed-Utility-Planning Collaborative. November 1999.

“The Economic and Environmental Benefits of Gas IRP: FERC 636 and Beyond.” Presentation as part of the Ohio Office of Energy Efficiency’s seminar, “Gas Utility Integrated Resource Planning,” April 1994.

“Cost Recovery and Utility Incentives.” Day-long presentation as part of the Demand-Side-Management Training Institute’s workshop, “DSM for Public Interest Groups,” October 1993.

“Cost Allocation for Utility Ratemaking.” With Susan Geller. Day-long workshop for the staff of the Connecticut Department of Public Utility Control, October 1993.

“Comparing and Integrating DSM with Supply.” Day-long presentation as part of the Demand-Side-Management Training Institute’s workshop, “DSM for Public Interest Groups,” October 1993.

“DSM Cost Recovery and Rate Impacts.” Presentation as part of “Effective DSM Collaborative Processes,” a week-long training session for Ohio DSM advocates sponsored by the Ohio Office of Energy Efficiency, August 1993.

“Cost-Effectiveness Analysis.” Presentation as part of “Effective DSM Collaborative Processes,” a week-long training session for Ohio DSM advocates sponsored by the Ohio Office of Energy Efficiency, August 1993.

“Environmental Externalities: Current Approaches and Potential Implications for District Heating and Cooling” (with R. Brailove), International District Heating and Cooling Association 84th Annual Conference. June 1993.

“Using the Costs of Required Controls to Incorporate the Costs of Environmental Externalities in Non-Environmental Decision-Making.” Presentation at the American Planning Association 1992 National Planning Conference; presentation cosponsored by the Edison Electric Institute. May 1992.

“Cost Recovery and Decoupling” and “The Clean Air Act and Externalities in Utility Resource Planning” panels (session leader), DSM Advocacy Workshop. April 15 1992.

“Overview of Integrated Resources Planning Procedures in South Carolina and Critique of South Carolina Demand Side Management Programs,” Energy Planning Workshops; Columbia, S.C. October 21 1991.

“Least Cost Planning and Gas Utilities.” Conservation Law Foundation Utility Energy Efficiency Advocacy Workshop; Boston, February 28 1991.

“Least-Cost Planning in a Multi-Fuel Context.” NARUC Forum on Gas Integrated Resource Planning; Washington, D.C., February 24 1991.

“Accounting for Externalities: Why, Which and How?” Understanding Massachusetts’ New Integrated Resource Management Rules. Needham, Massachusetts, November 9 1990.

New England Gas Association Gas Utility Managers’ Conference. Woodstock, Vermont, September 10 1990.

“Quantifying and Valuing Environmental Externalities.” Presentation at the Lawrence Berkeley Laboratory Training Program for Regulatory Staff, sponsored by the U.S. Department of Energy’s Least-Cost Utility Planning Program; Berkeley, California, February 2 1990;

“Conservation in the Future of Natural Gas Local Distribution Companies.” District of Columbia Natural Gas Seminar; Washington, D.C. May 23 1989.

“Conservation and Load Management for Natural Gas Utilities,” Massachusetts Natural Gas Council; Newton, Massachusetts. April 3 1989.

New England Conference of Public Utilities Commissioners, Environmental Externalities Workshop. Portsmouth, New Hampshire, January 22–23 1989.

“Assessment and Valuation of External Environmental Damages.” New England Utility Rate Forum. Plymouth, Massachusetts, October 11 1985; “Lessons from Massachusetts on Long Term Rates for QFs”.

“Reviewing Utility Supply Plans.” Massachusetts Energy Facilities Siting Council; Boston, Massachusetts. May 30 1985.

“Power Plant Performance.” National Association of State Utility Consumer Advocates; Williamstown, Massachusetts. August 13 1984.

“Utility Rate Shock,” National Conference of State Legislatures; Boston, Massachusetts, August 6 1984.

“Review and Modification of Regulatory and Rate Making Policy,” National Governors’ Association Working Group on Nuclear Power Cost Overruns; Washington, D.C., June 20 1984.

“Review and Modification of Regulatory and Rate Making Policy,” Annual Meeting of the American Association for the Advancement of Science, Session on Monitoring for Risk Management; Detroit, Michigan, May 27 1983.

#### **ADVISORY ASSIGNMENTS TO REGULATORY COMMISSIONS**

District of Columbia Public Service Commission, Docket No. 834, Phase II; Least-cost planning procedures and goals. August 1987 to March 1988.

Connecticut Department of Public Utility Control, Docket No. 87-07-01, Phase 2; Rate design and cost allocations. March 1988 to June 1989.

Austin City Council, Austin Energy Rates, March to June 2012.

Puerto Rico Energy Commission, Puerto Rico Electric Power Authority, rate design issues, September 2015 to present.

#### **EXPERT TESTIMONY**

1. **Mass. EFSC 78-12/MDPU 19494**, Phase I; Boston Edison 1978 forecast; Massachusetts Attorney General. June 12 1978.

Appliance penetration projections, price elasticity, econometric commercial forecast, peak demand forecast. Joint testimony with Susan C. Geller.

2. **Mass. EFSC 78-17**, Northeast Utilities 1978 forecast; Massachusetts Attorney General. September 29 1978.

Specification of economic/demographic and industrial models, appliance efficiency, commercial model structure and estimation.

3. **Mass. EFSC 78-33**, Eastern Utilities Associates 1978 forecast; Massachusetts Attorney General. November 27 1978.

Household size, appliance efficiency, appliance penetration, price elasticity, commercial forecast, industrial trending, peak demand forecast.

4. **Mass. DPU 19494**, Phase II; Boston Edison Company construction program; Massachusetts Attorney General. April 1 1979.

Review of numerous aspects of the 1978 demand forecasts of nine New England electric utilities, constituting 92% of projected regional demand growth, and of the NEPOOL demand forecast. Joint testimony with Susan Geller.

5. **Mass. DPU 19494**, Phase II; Boston Edison Company construction program; Massachusetts Attorney General. April 1 1979.

Reliability, capacity planning, capability responsibility allocation, customer generation, co-generation rates, reserve margins, operating reserve allocation. Joint testimony with S. Finger.

6. **U.S. ASLB NRC 50-471**, Pilgrim Unit 2; Commonwealth of Massachusetts. June 29 1979.

Review of the Oak Ridge National Laboratory and NEPOOL demand forecast models; cost-effectiveness of oil displacement; nuclear economics. Joint testimony with Susan Geller.

7. **Mass. DPU 19845**, Boston Edison time-of-use-rate case; Massachusetts Attorney General. December 4 1979. (Not presented)

Critique of utility marginal cost study and proposed rates; principles of marginal cost principles, cost derivation, and rate design; options for reconciling costs and revenues. Joint testimony with Susan Geller.

8. **Mass. DPU 20055**, petition of Eastern Utilities Associates, New Bedford G. & E., and Fitchburg G. & E. to purchase additional shares of Seabrook Nuclear Plant; Massachusetts Attorney General. January 23 1980.

Review of demand forecasts of three utilities purchasing Seabrook shares; Seabrook power costs, including construction cost, completion date, capacity factor, O&M expenses, interim replacements, reserves and uncertainties; alternative energy sources, including conservation, cogeneration, rate reform, solar, wood and coal conversion.

9. **Mass. DPU 20248**, petition of Massachusetts Municipal Wholesale Electric Company to purchase additional share of Seabrook Nuclear Plant; Massachusetts Attorney General. June 2 1980.

Nuclear power costs; update and extension of MDPU 20055 testimony.

10. **Mass. DPU 200**, Massachusetts Electric Company rate case; Massachusetts Attorney General. June 16 1980.

Rate design; declining blocks, promotional rates, alternative energy, demand charges, demand ratchets; conservation: master metering, storage heating, efficiency standards, restricting resistance heating.

11. **Mass. EFSC 79-33**, Eastern Utilities Associates 1979 forecast; Massachusetts Attorney General. July 16 1980.

Customer projections, consistency issues, appliance efficiency, new appliance types, commercial specifications, industrial data manipulation and trending, sales and resale.

12. **Mass. DPU 243**, Eastern Edison Company rate case; Massachusetts Attorney General. August 19 1980.

Rate design: declining blocks, promotional rates, alternative energy, master metering.

13. **Texas PUC 3298**, Gulf States Utilities rate case; East Texas Legal Services. August 25 1980.

Inter-class revenue allocations, including production plant in-service, O&M, CWIP, nuclear fuel in progress, amortization of canceled plant residential rate design; interruptible rates; off-peak rates. Joint testimony with M. B. Meyer.

14. **Mass. EFSC 79-1**, Massachusetts Municipal Wholesale Electric Company Forecast; Massachusetts Attorney General. November 5 1980.

Cost comparison methodology; nuclear cost estimates; cost of conservation, co-generation, and solar.

15. **Mass. DPU 472**, recovery of residential conservation-service expenses; Massachusetts Attorney General. December 12 1980.

Conservation as an energy source; advantages of per-kWh allocation over per-customer-month allocation.

16. **Mass. DPU 535**; regulations to carry out Section 210 of PURPA; Massachusetts Attorney General. January 26 1981 and February 13 1981.

Filing requirements, certification, qualifying-facility status, extent of coverage, review of contracts; energy rates; capacity rates; extra benefits of qualifying facilities in specific areas; wheeling; standardization of fees and charges.

17. **Mass. EFSC 80-17**, Northeast Utilities 1980 forecast; Massachusetts Attorney General. March 12 1981 (not presented).

Specification process, employment, electric heating promotion and penetration, commercial sales model, industrial model specification, documentation of price forecasts and wholesale forecast.

18. **Mass. DPU 558**, Western Massachusetts Electric Company rate case; Massachusetts Attorney General. May 1981.

Rate design including declining blocks, marginal cost conservation impacts, and promotional rates. Conservation, including terms and conditions limiting renewable, cogeneration, small power production; scope of current conservation program; efficient insulation levels; additional conservation opportunities.

- 19. Mass. DPU 1048**, Boston Edison plant performance standards; Massachusetts Attorney General. May 7 1982.

Critique of company approach, data, and statistical analysis; description of comparative and absolute approaches to standard-setting; proposals for standards and reporting requirements.

- 20. D.C. PSC FC785**, Potomac Electric Power rate case; D.C. People's Counsel. July 29 1982.

Inter-class revenue allocations, including generation, transmission, and distribution plant classification; fuel and O&M classification; distribution and service allocators. Marginal cost estimation, including losses.

- 21. N.H. PSC DE1-312**, Public Service of New Hampshire supply and demand; Conservation Law Foundation et al. October 8 1982.

Conservation program design, ratemaking, and effectiveness. Cost of power from Seabrook nuclear plant, including construction cost and duration, capacity factor, O&M, replacements, insurance, and decommissioning.

- 22. Mass. Division of Insurance**, hearing to fix and establish 1983 automobile insurance rates; Massachusetts Attorney General. October 1982.

Profit margin calculations, including methodology, interest rates, surplus flow, tax flows, tax rates, and risk premium.

- 23. Ill. CC 82-0026**, Commonwealth Edison rate case; Illinois Attorney General. October 15 1982.

Review of Cost-Benefit Analysis for nuclear plant. Nuclear cost parameters (construction cost, O&M, capital additions, useful life, capacity factor), risks, discount rates, evaluation techniques.

- 24. N.M. PSC 1794**, Public Service of New Mexico application for certification; New Mexico Attorney General. May 10 1983.

Review of Cost-Benefit Analysis for transmission line. Review of electricity price forecast, nuclear capacity factors, load forecast. Critique of company ratemaking proposals; development of alternative ratemaking proposal.

- 25. Conn. DPUC 830301**, United Illuminating rate case; Connecticut Consumers Counsel. June 17 1983.

Cost of Seabrook nuclear power plants, including construction cost and duration, capacity factor, O&M, capital additions, insurance and decommissioning.

26. **Mass. DPU 1509**, Boston Edison plant performance standards; Massachusetts Attorney General. July 15 1983.
- Critique of company approach and statistical analysis; regression model of nuclear capacity factor; proposals for standards and for standard-setting methodologies.
27. **Mass. Division of Insurance**, hearing to fix and establish 1984 automobile-insurance rates; Massachusetts Attorney General. October 1983.
- Profit margin calculations, including methodology, interest rates.
28. **Conn. DPUC 83-07-15**, Connecticut Light and Power rate case; Alloy Foundry. October 3 1983.
- Industrial rate design. Marginal and embedded costs; classification of generation, transmission, and distribution expenses; demand versus energy charges.
29. **Mass. EFSC 83-24**, New England Electric System forecast of electric resources and requirements; Massachusetts Attorney General. November 14 1983, Rebuttal, February 2 1984.
- Need for transmission line. Status of supply plan, especially Seabrook 2. Review of interconnection requirements. Analysis of cost-effectiveness for power transfer, line losses, generation assumptions.
30. **Mich. PSC U-7775**, Detroit Edison Fuel Cost Recovery Plan; Public Interest Research Group in Michigan. February 21 1984.
- Review of proposed performance target for new nuclear power plant. Formulation of alternative proposals.
31. **Mass. DPU 84-25**, Western Massachusetts Electric Company rate case; Massachusetts Attorney General. April 6 1984.
- Need for Millstone 3. Cost of completing and operating unit, cost-effectiveness compared to alternatives, and its effect on rates. Equity and incentive problems created by CWIP. Design of Millstone 3 phase-in proposals to protect ratepayers: limitation of base-rate treatment to fuel savings benefit of unit.
32. **Mass. DPU 84-49 and 84-50**, Fitchburg Gas & Electric financing case; Massachusetts Attorney General. April 13 1984.
- Cost of completing and operating Seabrook nuclear units. Probability of completing Seabrook 2. Recommendations regarding FG&E and MDPU actions with respect to Seabrook.
33. **Mich. PSC U-7785**, Consumers Power fuel-cost-recovery plan; Public Interest Research Group in Michigan. April 16 1984.



Review of proposed performance targets for two existing and two new nuclear power plants. Formulation of alternative policy.

- 34. FERC ER81-749-000 and ER82-325-000, Montaup Electric rate cases; Massachusetts Attorney General. April 27 1984.**

Prudence of Montaup and Boston Edison in decisions regarding Pilgrim 2 construction: Montaup's decision to participate, the Utilities' failure to review their earlier analyses and assumptions, Montaup's failure to question Edison's decisions, and the utilities' delay in canceling the unit.

- 35. Maine PUC 84-113, Seabrook-1 investigation; Maine Public Advocate. September 13 1984.**

Cost of completing and operating Seabrook Unit 1. Probability of completing Seabrook 1. Comparison of Seabrook to alternatives. Rate effects. Recommendations regarding utility and PUC actions with respect to Seabrook.

- 36. Mass. DPU 84-145, Fitchburg Gas and Electric rate case; Massachusetts Attorney General. November 6 1984.**

Prudence of Fitchburg and Public Service of New Hampshire in decision regarding Seabrook 2 construction: FGE's decision to participate, the utilities' failure to review their earlier analyses and assumptions, FGE's failure to question PSNH's decisions, and utilities' delay in halting construction and canceling the unit. Review of literature, cost and schedule estimate histories, cost-benefit analyses, and financial feasibility.

- 37. Penn. PUC R-842651, Pennsylvania Power and Light rate case; Pennsylvania Consumer Advocate. November 1984.**

Need for Susquehanna 2. Cost of operating unit, power output, cost-effectiveness compared to alternatives, and its effect on rates. Design of phase-in and excess capacity proposals to protect ratepayers: limitation of base-rate treatment to fuel savings benefit of unit.

- 38. N.H. PSC 84-200, Seabrook Unit-1 investigation; New Hampshire Public Advocate. November 15 1984.**

Cost of completing and operating Seabrook Unit 1. Probability of completing Seabrook 1. Comparison of Seabrook to alternatives. Rate and financial effects.

- 39. Mass. Division of Insurance, hearing to fix and establish 1986 automobile insurance rates; Massachusetts Attorney General. November 1984.**

Profit-margin calculations, including methodology and implementation.

- 40. Mass. DPU 84-152, Seabrook Unit 1 investigation; Massachusetts Attorney General. December 12 1984.**

Cost of completing and operating Seabrook. Probability of completing Seabrook  
1. Seabrook capacity factors.

- 41. Maine PUC 84-120;** Central Maine Power rate case; Maine PUC Staff. December 11 1984.

Prudence of Central Maine Power and Boston Edison in decisions regarding Pilgrim 2 construction: CMP's decision to participate, the utilities' failure to review their earlier analyses and assumptions, CMP's failure to question Edison's decisions, and the utilities' delay in canceling the unit. Prudence of CMP in the planning and investment in Sears Island nuclear and coal plants. Review of literature, cost and schedule estimate histories, cost-benefit analyses, and financial feasibility.

- 42. Maine PUC 84-113,** Seabrook 2 investigation; Maine PUC Staff. December 14 1984.

Prudence of Maine utilities and Public Service of New Hampshire in decisions regarding Seabrook 2 construction: decisions to participate and to increase ownership share, the utilities' failure to review their earlier analyses and assumptions, failure to question PSNH's decisions, and the utilities' delay in halting construction and canceling the unit. Review of literature, cost and schedule estimate histories, cost-benefit analyses, and financial feasibility.

- 43. Mass. DPU 1627,** Massachusetts Municipal Wholesale Electric Company financing case; Massachusetts Executive Office of Energy Resources. January 14 1985.

Cost of completing and operating Seabrook nuclear unit 1. Cost of conservation and other alternatives to completing Seabrook. Comparison of Seabrook to alternatives.

- 44. Vt. PSB 4936,** Millstone 3 costs and in-service date; Vermont Department of Public Service. January 21 1985.

Construction schedule and cost of completing Millstone Unit 3.

- 45. Mass. DPU 84-276,** rules governing rates for utility purchases of power from qualifying facilities; Massachusetts Attorney General. March 25 1985 and October 18 1985.

Institutional and technological advantages of Qualifying Facilities. Potential for QF development. Goals of QF rate design. Parity with other power sources. Security requirements. Projecting avoided costs. Capacity credits. Pricing options. Line loss corrections.

- 46. Mass. DPU 85-121,** investigation of the Reading Municipal Light Department; Wilmington (Mass.) Chamber of Commerce. November 12 1985.

Calculation on return on investment for municipal utility. Treatment of depreciation and debt for ratemaking. Geographical discrimination in street-lighting rates. Relative size of voluntary payments to Reading and other towns. Surplus and disinvestment. Revenue allocation.

- 47. Mass. Division of Insurance**, hearing to fix and establish 1986 automobile insurance rates; Massachusetts Attorney General and State Rating Bureau. November 1985.

Profit margin calculations, including methodology, implementation, modeling of investment balances, income, and return to shareholders.

- 48. N.M. PSC 1833, Phase II**; El Paso Electric rate case; New Mexico Attorney General. December 23 1985.

Nuclear decommissioning fund design. Internal and external funds; risk and return; fund accumulation, recommendations. Interim performance standard for Palo Verde nuclear plant.

- 49. Penn. PUC R-850152**, Philadelphia Electric rate case; Utility Users Committee and University of Pennsylvania. January 14 1986.

Limerick-1 rate effects. Capacity benefits, fuel savings, operating costs, capacity factors, and net benefits to ratepayers. Design of phase-in proposals.

- 50. Mass. DPU 85-270**; Western Massachusetts Electric rate case; Massachusetts Attorney General. March 19 1986.

Prudence of Northeast Utilities in generation planning related to Millstone 3 construction: decisions to start and continue construction, failure to reduce ownership share, failure to pursue alternatives. Review of industry literature, cost and schedule histories, and retrospective cost-benefit analyses.

- 51. Penn. PUC R-850290**, Philadelphia Electric auxiliary service rates; Albert Einstein Medical Center, University of Pennsylvania, and Amtrak. March 24 1986.

Review of utility proposals for supplementary and backup rates for small power producers and cogenerators. Load diversity, cost of peaking capacity, value of generation, price signals, and incentives. Formulation of alternative supplementary rate.

- 52. N.M. PSC 2004**, Public Service of New Mexico Palo Verde issues; New Mexico Attorney General. May 7 1986.

Recommendations for power-plant performance standards for Palo Verde nuclear units 1, 2, and 3.

- 53. Ill. CC 86-0325**, Iowa-Illinois Gas and Electric Co. rate investigation; Illinois Office of Public Counsel. August 13 1986.

Determination of excess capacity based on reliability and economic concerns. Identification of specific units associated with excess capacity. Required reserve margins.

- 54. N.M. PSC 2009**, El Paso Electric rate moderation program; New Mexico Attorney General. August 18 1986. (Not presented).

Prudence of EPE in generation planning related to Palo Verde nuclear construction, including failure to reduce ownership share and failure to pursue alternatives. Review of industry literature, cost and schedule histories, and retrospective cost-benefit analyses.

Recommendation for rate-base treatment; proposal of power plant performance standards.

- 55. City of Boston Public Improvements Commission**, transfer of Boston Edison district heating steam system to Boston Thermal Corporation; Boston Housing Authority. December 18 1986.

History and economics of steam system; possible motives of Boston Edison in seeking sale; problems facing Boston Thermal; information and assurances required prior to Commission approval of transfer.

- 56. Mass. Division of Insurance**, hearing to fix and establish 1987 automobile insurance rates; Massachusetts Attorney General and State Rating Bureau. December 1986 and January 1987.

Profit margin calculations, including methodology, implementation, derivation of cash flows, installment income, income tax status, and return to shareholders.

- 57. Mass. DPU 87-19**, petition for adjudication of development facilitation program; Hull (Mass.) Municipal Light Plant. January 21 1987.

Estimation of potential load growth; cost of generation, transmission, and distribution additions. Determination of hook-up charges. Development of residential load estimation procedure reflecting appliance ownership, dwelling size.

- 58. N.M. PSC 2004**, Public Service of New Mexico nuclear decommissioning fund; New Mexico Attorney General. February 19 1987.

Decommissioning cost and likely operating life of nuclear plants. Review of utility funding proposal. Development of alternative proposal. Ratemaking treatment.

- 59. Mass. DPU 86-280**, Western Massachusetts Electric rate case; Massachusetts Energy Office. March 9 1987.

Marginal cost rate design issues. Superiority of long-run marginal cost over short-run marginal cost as basis for rate design. Relationship of Consumer reaction, utility planning process, and regulatory structure to rate design approach. Implementation of short-run and long-run rate designs. Demand versus energy charges, economic development rates, spot pricing.

- 60. Mass. Division of Insurance** 87-9, 1987 Workers' Compensation rate filing; State Rating Bureau. May 1987.

Profit-margin calculations, including methodology, implementation, surplus requirements, investment income, and effects of 1986 Tax Reform Act.

- 61. Texas PUC** 6184, economic viability of South Texas Nuclear Plant #2; Committee for Consumer Rate Relief. August 17 1987.

Nuclear plant operating parameter projections; capacity factor, O&M, capital additions, decommissioning, useful life. STNP-2 cost and schedule projections. Potential for conservation.

- 62. Minn. PUC** ER-015/GR-87-223, Minnesota Power rate case; Minnesota Department of Public Service. August 17 1987.

Excess capacity on MP system; historical, current, and projected. Review of MP planning prudence prior to and during excess; efforts to sell capacity. Cost of excess capacity. Recommendations for ratemaking treatment.

- 63. Mass. Division of Insurance** 87-27, 1988 automobile insurance rates; Massachusetts Attorney General and State Rating Bureau. September 2 1987. Rebuttal October 8 1987.

Underwriting profit margins. Effect of 1986 Tax Reform Act. Biases in calculation of average margins.

- 64. Mass. DPU** 88-19, power Sales Contract from Riverside Steam and Electric to Western Massachusetts Electric; Riverside Steam and Electric. November 4 1987.

Comparison of risk from QF contract and utility avoided-cost sources. Risk of oil dependence. Discounting cash flows to reflect risk.

- 65. Mass. Division of Insurance** 87-53, 1987 Workers' Compensation rate refiling; State Rating Bureau. December 14 1987.

Profit-margin calculations including updating of data, compliance with Commissioner's order, treatment of surplus and risk, interest rate calculation, and investment tax rate calculation.

- 66. Mass. Division of Insurance**, 1987 and 1988 automobile insurance remand rates; Massachusetts Attorney General and State Rating Bureau. February 5 1988.

Underwriting profit margins. Provisions for income taxes on finance charges. Relationships between allowed and achieved margins, between statewide and nationwide data, and between profit allowances and cost projections.

- 67. Mass. DPU 86-36**, investigation into the pricing and ratemaking treatment to be afforded new electric generating facilities which are not qualifying facilities; Conservation Law Foundation. May 2 1988.

Cost recovery for utility conservation programs. Compensating for lost revenues. Utility incentive structures.

- 68. Mass. DPU 88-123**, petition of Riverside Steam & Electric Company; Riverside Steam and Electric Company. May 18 1988 and November 8 1988.

Estimation of avoided costs of Western Massachusetts Electric Company. Nuclear capacity factor projections and effects on avoided costs. Avoided cost of energy interchange and power plant life extensions. Differences between median and expected oil prices. Salvage value of cogeneration facility. Off-system energy purchase projections. Reconciliation of avoided cost projection.

- 69. Mass. DPU 88-67**, Boston Gas Company; Boston Housing Authority. June 17 1988.

Estimation of annual avoidable costs, 1988 to 2005, and levelized avoided costs. Determination of cost recovery and carrying costs for conservation investments. Standards for assessing conservation cost-effectiveness. Evaluation of cost-effectiveness of utility funding of proposed natural gas conservation measures.

- 70. R.I. PUC 1900**, Providence Water Supply Board tariff filing; Conservation Law Foundation, Audubon Society of Rhode Island, and League of Women Voters of Rhode Island. June 24 1988.

Estimation of avoidable water supply costs. Determination of costs of water conservation. Conservation cost-benefit analysis.

- 71. Mass. Division of Insurance 88-22**, 1989 automobile insurance rates; Massachusetts Attorney General and State Rating Bureau; Profit Issues, August 12 1988, supplemented August 19 1988; Losses and Expenses, September 16 1988.

Underwriting profit margins. Effects of 1986 Tax Reform Act. Taxation of common stocks. Lag in tax payments. Modeling risk and return over time. Treatment of finance charges. Comparison of projected and achieved investment returns.

- 72. Vt. PSB 5270 Module 6**, investigation into least-cost investments, energy efficiency, conservation, and the management of demand for energy; Conservation Law Foundation, Vermont Natural Resources Council, and Vermont Public Interest Research Group. September 26 1988.

Cost recovery for utility conservation programs. Compensation of utilities for revenue losses and timing differences. Incentive for utility participation.

73. **Vt. House of Representatives, Natural Resources Committee**, House Act 130; “Economic Analysis of Vermont Yankee Retirement”; Vermont Public Interest Research Group. February 21 1989.

Projection of capacity factors, operating and maintenance expense, capital additions, overhead, replacement power costs, and net costs of Vermont Yankee.

74. **Mass. DPU 88-67 Phase II**, Boston Gas company conservation program and rate design; Boston Gas Company. March 6 1989.

Estimation of avoided gas cost; treatment of non-price factors; estimation of externalities; identification of cost-effective conservation.

75. **Vt. PSB 5270**, status conference on conservation and load management policy settlement; Central Vermont Public Service, Conservation Law Foundation, Vermont Natural Resources Council, Vermont Public Interest Research Group, and Vermont Department of Public Service. May 1 1989.

Cost-benefit test for utility conservation programs. Role of externalities. Cost recovery concepts and mechanisms. Resource allocations, cost allocations, and equity considerations. Guidelines for conservation preapproval mechanisms. Incentive mechanisms and recovery of lost revenues.

76. **Boston Housing Authority Court 05099**, Gallivan Boulevard Task Force vs. Boston Housing Authority, et al.; Boston Housing Authority. June 16 1989.

Effect of master-metering on consumption of natural gas and electricity. Legislative and regulatory mandates regarding conservation.

77. **Mass. DPU 89-100**, Boston Edison rate case; Massachusetts Energy Office. June 30 1989.

Prudence of BECo’s decision to spend \$400 million from 1986–88 on returning the Pilgrim nuclear power plant to service. Projections of nuclear capacity factors, O&M, capital additions, and overhead. Review of decommissioning cost, tax effect of abandonment, replacement power cost, and plant useful life estimates. Requirements for prudence and used-and-useful analyses.

78. **Mass. DPU 88-123**, petition of Riverside Steam and Electric Company; Riverside Steam and Electric. July 24 1989. Rebuttal, October 3 1989.

Reasonableness of Northeast Utilities’ 1987 avoided cost estimates. Projections of nuclear capacity factors, economy purchases, and power plant operating life. Treatment of avoidable energy and capacity costs and of off-system sales. Expected versus reference fuel prices.

- 79. Mass. DPU 89-72**, Statewide Towing Association police-ordered towing rates; Massachusetts Automobile Rating Bureau. September 13 1989.

Review of study supporting proposed increase in towing rates. Critique of study sample and methodology. Comparison to competitive rates. Supply of towing services. Effects of joint products and joint sales on profitability of police-ordered towing. Joint testimony with I. Goodman.

- 80. Vt. PSB 5330**, application of Vermont utilities for approval of a firm power and energy contract with Hydro-Quebec; Conservation Law Foundation, Vermont Natural Resources Council, Vermont Public Interest Research Group. December 19 1989. Surrebuttal February 6 1990.

Analysis of a proposed 450-MW, 20-year purchase of Hydro-Quebec power by twenty-four Vermont utilities. Comparison to efficiency investment in Vermont, including potential for efficiency savings. Analysis of Vermont electric energy supply. Identification of possible improvements to proposed contract.

Critique of conservation potential analysis. Planning risk of large supply additions. Valuation of environmental externalities.

- 81. Mass. DPU 89-239**, inclusion of externalities in energy-supply planning, acquisition, and dispatch for Massachusetts utilities. December 1989; April 1990; May 1990.

Critique of Division of Energy Resources report on externalities. Methodology for evaluating external costs. Proposed values for environmental and economic externalities of fuel supply and use.

- 82. California PUC**, incorporation of environmental externalities in utility planning and pricing; Coalition of Energy Efficient and Renewable Technologies. February 21 1990.

Approaches for valuing externalities for inclusion in setting power purchase rates. Effect of uncertainty on assessing externality values.

- 83. Ill. CC 90-0038**, proceeding to adopt a least-cost electric-energy plan for Commonwealth Edison Company; City of Chicago. May 25 1990. Joint rebuttal testimony with David Birr, August 14 1990.

Problems in Commonwealth Edison's approach to demand-side management. Potential for cost-effective conservation. Valuing externalities in least-cost planning.

- 84. Md. PSC 8278**, adequacy of Baltimore Gas & Electric's integrated resource plan; Maryland Office of People's Counsel. September 18 1990.

Rationale for demand-side management. BG&E's problems in approach to DSM planning. Potential for cost-effective conservation. Valuation of environmental externalities. Recommendations for short-term DSM program priorities.



- 85. Ind. URC**, integrated-resource-planning docket; Indiana Office of Utility Consumer Counselor. November 1 1990.

Integrated resource planning process and methodology, including externalities and screening tools. Incentives, screening, and evaluation of demand-side management. Potential of resource bidding in Indiana.

- 86. Mass. DPU** 89-141, 90-73, 90-141, 90-194, 90-270; preliminary review of utility treatment of environmental externalities in October qualifying-facilities filings; Boston Gas Company. November 5 1990.

Generic and specific problems in Massachusetts utilities' RFPs with regard to externality valuation requirements. Recommendations for corrections.

- 87. Mass. EFSC** 90-12/90-12A, adequacy of Boston Edison proposal to build combined-cycle plant; Conservation Law Foundation. December 14 1990.

Problems in Boston Edison's treatment of demand-side management, supply option analysis, and resource planning. Recommendations of mitigation options.

- 88. Maine PUC** 90-286, adequacy of conservation program of Bangor Hydro Electric; Penobscot River Coalition. February 19 1991.

Role of utility-sponsored DSM in least-cost planning. Bangor Hydro's potential for cost-effective conservation. Problems with Bangor Hydro's assumptions about customer investment in energy efficiency measures.

- 89. Va. SCC** PUE900070, Order establishing commission investigation; Southern Environmental Law Center. March 6 1991.

Role of utilities in promoting energy efficiency. Least-cost planning objectives of and resource acquisition guidelines for DSM. Ratemaking considerations for DSM investments.

- 90. Mass. DPU** 90-261-A, economics and role of fuel-switching in the DSM program of the Massachusetts Electric Company; Boston Gas Company. April 17 1991.

Role of fuel-switching in utility DSM programs and specifically in Massachusetts Electric's. Establishing comparable avoided costs and comparison of electric and gas system costs. Updated externality values.

- 91. Private arbitration**, Massachusetts Refusetech Contractual Request for Adjustment to Service Fee; Massachusetts Refusetech. May 13 1991.

NEPCo rates for power purchases from the New England Solid Waste Compact plant. Fuel price and avoided cost projections vs. realities.

92. **Vt. PSB 5491**, cost-effectiveness of Central Vermont's commitment to Hydro Quebec purchases; Conservation Law Foundation. July 19 1991.

Changes in load forecasts and resale markets since approval of HQ purchases. Effect of HQ purchase on DSM.

93. **S.C. PSC 91-216-E**, cost recovery of Duke Power's DSM expenditures; South Carolina Department of Consumer Affairs. Direct, September 13 1991; Surrebuttal October 2 1991.

Problems with conservation plans of Duke Power, including load building, cream skimming, and inappropriate rate designs.

94. **Md. PSC 8241 Phase II**, review of Baltimore Gas & Electric's avoided costs; Maryland Office of People's Counsel. September 19 1991.

Development of direct avoided costs for DSM. Problems with BG&E's avoided costs and DSM screening. Incorporation of environmental externalities.

95. **Bucksport (Maine) Planning Board**, AES/Harriman Cove shoreland zoning application; Conservation Law Foundation and Natural Resources Council of Maine. October 1 1991.

New England's power surplus. Costs of bringing AES/Harriman Cove on line to back out existing generation. Alternatives to AES.

96. **Mass. DPU 91-131**, update of externalities values adopted in Docket 89-239; Boston Gas Company. October 4 1991. Rebuttal, December 13 1991.

Updates on pollutant externality values. Addition of values for chlorofluorocarbons, air toxics, thermal pollution, and oil import premium. Review of state regulatory actions regarding externalities.

97. **Fla. PSC 910759**, petition of Florida Power Corporation for determination of need for proposed electrical power plant and related facilities; Floridians for Responsible Utility Growth. October 21 1991.

Florida Power's obligation to pursue integrated resource planning and failure to establish need for proposed facility. Methods to increase scope and scale of demand-side investment.

98. **Fla. PSC 910833-EI**, petition of Tampa Electric Company for a determination of need for proposed electrical power plant and related facilities; Floridians for Responsible Utility Growth. October 31 1991.

Tampa Electric's obligation to pursue integrated resource planning and failure to establish need for proposed facility. Methods to increase scope and scale of demand-side investment.

99. **Penn. PUC** I-900005, R-901880; investigation into demand-side management by electric utilities; Pennsylvania Energy Office. January 10 1992.
- Appropriate cost recovery mechanism for Pennsylvania utilities. Purpose and scope of direct cost recovery, lost revenue recovery, and incentives.
100. **S.C. PSC** 91-606-E, petition of South Carolina Electric and Gas for a certificate of public convenience and necessity for a coal-fired plant; South Carolina Department of Consumer Affairs. January 20 1992.
- Justification of plant certification under integrated resource planning. Failures in SCE&G's DSM planning and company potential for demand-side savings.
101. **Mass. DPU** 92-92, adequacy of Boston Edison's street-lighting options; Town of Lexington. June 22 1992.
- Efficiency and quality of street-lighting options. Boston Edison's treatment of high-quality street lighting. Corrected rate proposal for the Daylux lamp. Ownership of public street lighting.
102. **S.C. PSC** 92-208-E, integrated-resource plan of Duke Power Company; South Carolina Department of Consumer Affairs. August 4 1992.
- Problems with Duke Power's DSM screening process, estimation of avoided cost, DSM program design, and integration of demand-side and supply-side planning.
103. **N.C. UC** E-100 Sub 64, integrated-resource-planning docket; Southern Environmental Law Center. September 29 1992.
- General principles of integrated resource planning, DSM screening, and program design. Review of the IRPs of Duke Power Company, Carolina Power & Light Company, and North Carolina Power.
104. **Ont. EAB** Ontario Hydro Demand/Supply Plan Hearings, *Environmental Externalities Valuation and Ontario Hydro's Resource Planning* (3 vols.); Coalition of Environmental Groups. October 1992.
- Valuation of environmental externalities from fossil fuel combustion and the nuclear fuel cycle. Application to Ontario Hydro's supply and demand planning.
105. **Texas PUC** 110000, application of Houston Lighting and Power company for a certificate of convenience and necessity for the DuPont Project; Destec Energy, Inc. September 28 1992.
- Valuation of environmental externalities from fossil fuel combustion and the application to the evaluation of proposed cogeneration facility.

- 106. Maine BEP**, in the matter of the Basin Mills Hydroelectric Project application; Conservation Intervenor. November 16 1992.

Economic and environmental effects of generation by proposed hydro-electric project.

- 107. Md. PSC 8473**, review of the power sales agreement of Baltimore Gas and Electric with AES Northside; Maryland Office of People's Counsel. November 16 1992.

Non-price scoring and unquantified benefits; DSM potential as alternative; environmental costs; cost and benefit estimates.

- 108. N.C. UC E-100 Sub 64**, analysis and investigation of least cost integrated resource planning in North Carolina; Southern Environmental Law Center. November 18 1992.

Demand-side management cost recovery and incentive mechanisms.

- 109. S.C. PSC 92-209-E**, in re Carolina Power & Light Company; South Carolina Department of Consumer Affairs. November 24 1992.

Demand-side-management planning: objectives, process, cost-effectiveness test, comprehensiveness, lost opportunities. Deficiencies in CP&L's portfolio. Need for economic evaluation of load building.

- 110 Fla. DER** hearings on the Power Plant Siting Act; Legal Environmental Assistance Foundation. December 1992.

Externality valuation and application in power-plant siting. DSM potential, cost-benefit test, and program designs.

- 111. Md. PSC 8487**, Baltimore Gas and Electric Company electric rate case. Direct, January 13 1993; rebuttal, February 4 1993.

Class allocation of production plant and O&M; transmission, distribution, and general plant; administrative and general expenses. Marginal cost and rate design.

- 112. Md. PSC 8179**, Approval of amendment no. 2 to Potomac Edison purchase agreement with AES Warrior Run; Maryland Office of People's Counsel. January 29 1993.

Economic analysis of proposed coal-fired cogeneration facility.

- 113. Mich. PSC U-10102**, Detroit Edison rate case; Michigan United Conservation Clubs. February 17 1993.

Least-cost planning; energy efficiency planning, potential, screening, avoided costs, cost recovery, and shareholder incentives.

- 114. Ohio PUC 91-635-EL-FOR, 92-312-EL-FOR, 92-1172-EL-ECP;** Cincinnati Gas and Electric demand-management programs; City of Cincinnati. April 1993.
- Demand-side-management planning, program designs, potential savings, and avoided costs.
- 115. Mich. PSC U-10335,** Consumers Power rate case; Michigan United Conservation Clubs. October 1993.
- Least-cost planning; energy efficiency planning, potential, screening, avoided costs, cost recovery, and shareholder incentives.
- 116. Ill. CC 92-0268,** electric-energy plan for Commonwealth Edison; City of Chicago. Direct, February 1 1994; rebuttal, September 1994.
- Cost-effectiveness screening of demand-side management programs and measures; estimates by Commonwealth Edison of costs avoided by DSM and of future cost, capacity, and performance of supply resources.
- 117. FERC 2422 et al.,** application of James River–New Hampshire Electric, Public Service of New Hampshire, for licensing of hydro power; Conservation Law Foundation; 1993.
- Cost-effective energy conservation available to the Public Service of New Hampshire; power-supply options; affidavit.
- 118. Vt. PSB 5270-CV-1,-3, and 5686;** Central Vermont Public Service fuel-switching and DSM program design, on behalf of the Vermont Department of Public Service. Direct, April 1994; rebuttal, June 1994.
- Avoided costs and screening of controlled water-heating measures; risk, rate impacts, participant costs, externalities, space- and water-heating load, benefit-cost tests.
- 119. Fla. PSC 930548-EG–930551-EG,** conservation goals for Florida electric utilities; Legal Environmental Assistance Foundation, Inc. April 1994.
- Integrated resource planning, avoided costs, rate impacts, analysis of conservation goals of Florida electric utilities.
- 120. Vt. PSB 5724,** Central Vermont Public Service Corporation rate request; Vermont Department of Public Service. Joint surrebuttal testimony with John Plunkett. August 1994.
- Costs avoided by DSM programs; Costs and benefits of deferring DSM programs.
- 121. Mass. DPU 94-49,** Boston Edison integrated-resource-management plan; Massachusetts Attorney General. August 1994.
- Least-cost planning, modeling, and treatment of risk.

- 122. Mich. PSC U-10554**, Consumers Power Company DSM program and incentive; Michigan Conservation Clubs. November 1994.

Critique of proposed reductions in DSM programs; discussion of appropriate measurements of cost-effectiveness, role of DSM in competitive power markets.

- 123. Mich. PSC U-10702**, Detroit Edison Company cost recovery, on behalf of the Residential Ratepayers Consortium. December 1994.

Impact of proposed changes to DSM plan on energy costs and power-supply-cost-recovery charges. Critique of proposed DSM changes; discussion of appropriate measurements of cost-effectiveness, role of DSM in competitive power markets.

- 124. N.J. BRC EM92030359**, environmental costs of proposed cogeneration; Freehold Cogeneration Associates. November 1994.

Comparison of potential externalities from the Freehold cogeneration project with that from three coal technologies; support for the study “The Externalities of Four Power Plants.”

- 125. Mich. PSC U-10671**, Detroit Edison Company DSM programs; Michigan United Conservation Clubs. January 1995.

Critique of proposal to scale back DSM efforts in light of potential for competition. Loss of savings, increase of customer costs, and decrease of competitiveness. Discussion of appropriate measurements of cost-effectiveness, role of DSM in competitive power markets.

- 126. Mich. PSC U-10710**, power-supply-cost-recovery plan of Consumers Power Company; Residential Ratepayers Consortium. January 1995.

Impact of proposed changes to DSM plan on energy costs and power-supply-cost-recovery charges. Critique of proposed DSM changes; discussion of appropriate measurements of cost-effectiveness, role of DSM in competitive power markets.

- 127. FERC 2458 and 2572**, Bowater–Great Northern Paper hydropower licensing; Conservation Law Foundation. February 1995.

Comments on draft environmental impact statement relating to new licenses for two hydropower projects in Maine. Applicant has not adequately considered how energy conservation can replace energy lost due to habitat-protection or -enhancement measures.

- 128. N.C. UC E-100 Sub 74**, Duke Power and Carolina Power & Light avoided costs; Hydro-Electric–Power Producer’s Group. February 1995.

Critique and proposed revision of avoided costs offered to small hydro-power producers by Duke Power and Carolina Power and Light.

- 129. New Orleans City Council** UD-92-2A and -2B, least-cost IRP for New Orleans Public Service and Louisiana Power & Light; Alliance for Affordable Energy. Direct, February 1995; rebuttal, April 1995.

Critique of proposal to scale back DSM efforts in light of potential competition.

- 130. D.C. psc** FC917 II, prudence of DSM expenditures of Potomac Electric Power Company; Potomac Electric Power Company. Rebuttal testimony, February 1995.

Prudence of utility DSM investment; prudence standards for DSM programs of the Potomac Electric Power Company.

- 131. Ont. Energy Board** EBRO 490, DSM cost recovery and lost-revenue–adjustment mechanism for Consumers Gas Company; Green Energy Coalition. April 1995.

Demand-side-management cost recovery. Lost-revenue–adjustment mechanism for Consumers Gas Company.

- 132. New Orleans City Council** CD-85-1, New Orleans Public Service rate increase; Alliance for Affordable Energy. Rebuttal, May 1995.

Allocation of costs and benefits to rate classes.

- 133. Mass. DPU** Docket DPU-95-40, Mass. Electric cost-allocation; Massachusetts Attorney General. June 1995.

Allocation of costs to rate classes. Critique of cost-of-service study. Implications for industry restructuring.

- 134. Md. psc** 8697, Baltimore Gas & Electric gas rate increase; Maryland Office of People's Counsel. July 1995.

Rate design, cost-of-service study, and revenue allocation.

- 135. N.C. uc** E-2 Sub 669. December 1995.

Need for new capacity. Energy-conservation potential and model programs.

- 136. Arizona** CC U-1933-95-317, Tucson Electric Power rate increase; Residential Utility Consumer Office. January 1996.

Review of proposed rate settlement. Used-and-usefulness of plant. Rate design. DSM potential.

- 137. Ohio puc** 95-203-EL-FOR; Campaign for an Energy-Efficient Ohio. February 1996

Long-term forecast of Cincinnati Gas and Electric Company, especially its DSM portfolio. Opportunities for further cost-effective DSM savings. Tests of cost effectiveness. Role of DSM in light of industry restructuring; alternatives to traditional utility DSM.

- 138 Vt. PSB 5835**, Central Vermont Public Service Company rates; Vermont Department of Public Service. February 1996.
- Design of load-management rates of Central Vermont Public Service Company.
- 139. Md. PSC 8720**, Washington Gas Light DSM; Maryland Office of People's Counsel. May 1996.
- Avoided costs of Washington Gas Light Company; integrated least-cost planning.
- 140. Mass. DPU 96-100**, Massachusetts Utilities' Stranded Costs; Massachusetts Attorney General. Oral testimony in support of "estimation of Market Value, Stranded Investment, and Restructuring Gains for Major Massachusetts Utilities," July 1996.
- Stranded costs. Calculation of loss or gain. Valuation of utility assets.
- 141. Mass. DPU 96-70**, Essex County Gas Company rates; Massachusetts Attorney General. July 1996.
- Market-based allocation of gas-supply costs of Essex County Gas Company.
- 142. Mass. DPU 96-60**, Fall River Gas Company rates; Massachusetts Attorney General. Direct, July 1996; surrebuttal, August 1996.
- Market-based allocation of gas-supply costs of Fall River Gas Company.
- 143. Md. PSC 8725**, Maryland electric-utilities merger; Maryland Office of People's Counsel. July 1996.
- Proposed merger of Baltimore Gas & Electric Company, Potomac Electric Power Company, and Constellation Energy. Cost allocation of merger benefits and rate reductions.
- 144. N.H. PUC DR 96-150**, Public Service Company of New Hampshire stranded costs; New Hampshire Office of Consumer Advocate. December 1996.
- Market price of capacity and energy; value of generation plant; restructuring gain and stranded investment; legal status of PSNH acquisition premium; interim stranded-cost charges.
- 145. Ont. Energy Board EBRO 495**, LRAM and shared-savings incentive for DSM performance of Consumers Gas; Green Energy Coalition. March 1997.
- LRAM and shared-savings incentive mechanisms in rates for the Consumers Gas Company Ltd.
- 146. New York PSC 96-E-0897**, Consolidated Edison restructuring plan; City of New York. April 1997.



Electric-utility competition and restructuring; critique of proposed settlement of Consolidated Edison Company; stranded costs; market power; rates; market access.

- 147. Vt. PSB 5980**, proposed statewide energy plan; Vermont Department of Public Service. Direct, August 1997; rebuttal, December 1997.

Justification for and estimation of statewide avoided costs; guidelines for distributed IRP.

- 148. Mass. DPU 96-23**, Boston Edison restructuring settlement; Utility Workers Union of America. September 1997.

Performance incentives proposed for the Boston Edison company.

- 149. Vt. PSB 5983**, Green Mountain Power rate increase; Vermont Department of Public Service. Direct, October 1997; rebuttal, December 1997.

In three separate pieces of prefiled testimony, addressed the Green Mountain Power Corporation's (1) distributed-utility-planning efforts, (2) avoided costs, and (3) prudence of decisions relating to a power purchase from Hydro-Quebec.

- 150. Mass. DPU 97-63**, Boston Edison proposed reorganization; Utility Workers Union of America. October 1997.

Increased costs and risks to ratepayers and shareholders from proposed reorganization; risks of diversification; diversion of capital from regulated to unregulated affiliates; reduction in Commission authority.

- 151. Mass. DTE 97-111**, Commonwealth Energy proposed restructuring; Cape Cod Light Compact. Joint testimony with Jonathan Wallach, January 1998.

Critique of proposed restructuring plan filed to satisfy requirements of the electric-utility restructuring act of 1997. Failure of the plan to foster competition and promote the public interest.

- 152. N.H. PUC Docket DR 97-241**, Connecticut Valley Electric fuel and purchased-power adjustments; City of Claremont, N.H. February 1998.

Prudence of continued power purchase from affiliate; market cost of power; prudence disallowances and cost-of-service ratemaking.

- 153. Md. PSC 8774**, APS-DQE merger; Maryland Office of People's Counsel. February 1998.

Proposed power-supply arrangements between APS's potential operating subsidiaries; power-supply savings; market power.

- 154. Vt. PSB 6018**, Central Vermont Public Service Co. rate increase; Vermont Department of Public Service. February 1998.

Prudence of decisions relating to a power purchase from Hydro-Quebec. Reasonableness of avoided-cost estimates. Quality of DU planning.

- 155. Maine PUC 97-580**, Central Maine Power restructuring and rates; Maine Office of Public Advocate. May 1998; Surrebuttal, August 1998.

Determination of stranded costs; gains from sales of fossil, hydro, and biomass plant; treatment of deferred taxes; incentives for stranded-cost mitigation; rate design.

- 156. Mass. DTE 98-89**, purchase of Boston Edison municipal street lighting; Towns of Lexington and Acton. Affidavit, August 1998.

Valuation of municipal streetlighting; depreciation; applicability of unbundled rate.

- 157. Vt. PSB 6107**, Green Mountain Power rate increase; Vermont Department of Public Service. Direct, September 1998; Surrebuttal drafted but not filed, November 2000.

Prudence of decisions relating to a power purchase from Hydro-Quebec. Least-cost planning and prudence. Quality of DU planning.

- 158. Mass. DTE 97-120**, Western Massachusetts Electric Company proposed restructuring; Massachusetts Attorney General. Joint testimony with Jonathan Wallach, October 1998. Joint surrebuttal with Jonathan Wallach, January 1999.

Market value of the three Millstone nuclear units under varying assumptions of plant performance and market prices. Independent forecast of wholesale market prices. Value of Pilgrim and TMI-1 asset sales.

- 159. Md. psc 8794 and 8804**, BG&E restructuring and rates; Maryland Office of People's Counsel. Direct, December 1998; rebuttal, March 1999.

Implementation of restructuring. Valuation of generation assets from comparable-sales and cash-flow analyses. Determination of stranded cost or gain.

- 160. Md. psc 8795**; Delmarva Power & Light restructuring and rates; Maryland Office of People's Counsel. December 1998.

Implementation of restructuring. Valuation of generation assets and purchases from comparable-sales and cash-flow analyses. Determination of stranded cost or gain.

- 161. Md. psc 8797**, Potomac Edison Company restructuring and rates; Maryland Office of People's Counsel. Direct, January 1999; rebuttal, March 1999.

Implementation of restructuring. Valuation of generation assets and purchases from comparable-sales and cash-flow analyses. Determination of stranded cost or gain.

- 162. Conn. DPUC 99-02-05**, Connecticut Light and Power Company stranded costs; Connecticut Office of Consumer Counsel. April 1999.

Projections of market price. Valuation of purchase agreements and nuclear and non-nuclear assets from comparable-sales and cash-flow analyses.

- 163. Conn. DPUC 99-03-04**, United Illuminating Company stranded costs; Connecticut Office of Consumer Counsel. April 1999.

Projections of market price. Valuation of purchase agreements and nuclear assets from comparable-sales and cash-flow analyses.

- 164. Wash. UTC UE-981627**, PacifiCorp–Scottish Power merger, Office of the Attorney General. June 1999.

Review of proposed performance standards and valuation of performance. Review of proposed low-income assistance.

- 165. Utah PSC 98-2035-04**, PacifiCorp–Scottish Power merger, Utah Committee of Consumer Services. June 1999.

Review of proposed performance standards and valuation of performance.

- 166. Conn. DPUC 99-03-35**, United Illuminating Company proposed standard offer; Connecticut Office of Consumer Counsel. July 1999.

Design of standard offer by rate class. Design of price adjustments to preserve rate decrease. Market valuations of nuclear plants. Short-term stranded cost

- 167. Conn. DPUC 99-03-36**, Connecticut Light and Power Company proposed standard offer; Connecticut Office of Consumer Counsel. Direct, July 1999; supplemental, July 1999.

Design of standard offer by rate class. Design of price adjustments to preserve rate decrease. Market valuations of nuclear plants. Short-term stranded cost.

- 168. W. Va. PSC 98-0452-E-GI**, electric-industry restructuring, West Virginia Consumer Advocate. July 1999.

Market value of generating assets of, and restructuring gain for, Potomac Edison, Monongahela Power, and Appalachian Power. Comparable-sales and cash-flow analyses.

- 169. Ont. Energy Board RP-1999-0034**, Ontario performance-based rates; Green Energy Coalition. September 1999.

Rate design. Recovery of demand-side-management costs under PBR. Incremental costs.

- 170. Conn. DPUC 99-08-01**, standards for utility restructuring; Connecticut Office of Consumer Counsel. Direct, November 1999; supplemental, January 2000.

Appropriate role of regulation. T&D reliability and service quality. Performance standards and customer guarantees. Assessing generation adequacy in a competitive market.

- 171. Conn. Superior Court** CV 99-049-7239, Connecticut Light and Power Company stranded costs; Connecticut Office of Consumer Counsel. Affidavit, December 1999.

Errors of the Conn. DPUC in deriving discounted-cash-flow valuations for Millstone and Seabrook, and in setting minimum bid price.

- 172. Conn. Superior Court** CV 99-049-7597, United Illuminating Company stranded costs; Connecticut Office of Consumer Counsel. December 1999.

Errors of the Conn. DPUC, in its discounted-cash-flow computations, in selecting performance assumptions for Seabrook, and in setting minimum bid price.

- 173. Ont. Energy Board** RP-1999-0044, Ontario Hydro transmission-cost allocation and rate design; Green Energy Coalition. January 2000.

Cost allocation and rate design. Net vs. gross load billing. Export and wheeling-through transactions. Environmental implications of utility proposals.

- 174. Utah PSC** 99-2035-03, PacifiCorp Sale of Centralia plant, mine, and related facilities; Utah Committee of Consumer Services. January 2000.

Prudence of sale and management of auction. Benefits to ratepayers. Allocation and rate treatment of gain.

- 175. Conn. DPUC** 99-09-12, Nuclear Divestiture by Connecticut Light & Power and United Illuminating; Connecticut Office of Consumer Counsel. January 2000.

Market for nuclear assets. Optimal structure of auctions. Value of minority rights. Timing of divestiture.

- 176. Ont. Energy Board** RP-1999-0017, Union Gas PBR proposal; Green Energy Coalition. March 2000.

Lost-revenue-adjustment and shared-savings incentive mechanisms for Union Gas DSM programs. Standards for review of targets and achievements, computation of lost revenues. Need for DSM expenditure true-up mechanism.

- 177. N.Y. PSC** 99-S-1621, Consolidated Edison steam rates; City of New York. April 2000.

Allocation of costs of former cogeneration plants, and of net proceeds of asset sale. Economic justification for steam-supply plans. Depreciation rates. Weather normalization and other rate adjustments.

- 178. Maine PUC** 99-666, Central Maine Power alternative rate plan; Maine Public Advocate. Direct, May 2000; Surrebuttal, August 2000.

Likely merger savings. Savings and rate reductions from recent mergers. Implications for rates.

- 179. Mass. EFSB 97-4**, Massachusetts Municipal Wholesale Electric Company gas-pipeline proposal; Town of Wilbraham, Mass. June 2000.

Economic justification for natural-gas pipeline. Role and jurisdiction of EFSB.

- 180. Conn. DPUC 99-09-03**; Connecticut Natural Gas Corporation merger and rate plan; Connecticut office of Consumer Counsel. September 2000.

Performance-based ratemaking in light of mergers. Allocation of savings from merger. Earnings-sharing mechanism.

- 181. Conn. DPUC 99-09-12RE01**, Proposed Millstone sale; Connecticut Office of Consumer Counsel. November 2000.

Requirements for review of auction of generation assets. Allocation of proceeds between units.

- 182. Mass. DTE 01-25**, Purchase of streetlights from Commonwealth Electric; Cape Light Compact. January 2001

Municipal purchase of streetlights; Calculation of purchase price under state law; Determination of accumulated depreciation by asset.

- 183. Conn. DPUC 00-12-01 and 99-09-12RE03**, Connecticut Light & Power rate design and standard offer; Connecticut Office of Consumer Counsel. March 2001.

Rate design and standard offer under restructuring law; Future rate impacts; Transition to restructured regime; Comparison of Connecticut and California restructuring challenges.

- 184. Vt. PSB 6460 & 6120**, Central Vermont Public Service rates; Vermont Department of Public Service. Direct, March 2001; Surrebuttal, April 2001.

Review of decision in early 1990s to commit to long-term uneconomic purchase from Hydro Québec. Calculation of present damages from imprudence.

- 185. N.J. BPU EM00020106**, Atlantic City Electric Company sale of fossil plants; New Jersey Ratepayer Advocate. Affidavit, May 2001.

Comparison of power-supply contracts. Comparison of plant costs to replacement power cost. Allocation of sales proceeds between subsidiaries.

- 186. N.J. BPU GM00080564**, Public Service Electric and Gas transfer of gas supply contracts; New Jersey Ratepayer Advocate. Direct, May 2001.

Transfer of gas transportation contracts to unregulated affiliate. Potential for market power in wholesale gas supply and electric generation. Importance of reliable gas supply. Valuation of contracts. Effect of proposed requirements contract on rates. Regulation and design of standard-offer service.

- 187. Conn. DPUC 99-04-18 Phase 3, 99-09-03 Phase 2;** Southern Connecticut Natural Gas and Connecticut Natural Gas rates and charges; Connecticut Office of Consumer Counsel. Direct, June 2001; supplemental, July 2001.

Identifying, quantifying, and allocating merger-related gas-supply savings between ratepayers and shareholders. Establishing baselines. Allocations between affiliates. Unaccounted-for gas.

- 188. N.J. BPU EX01050303,** New Jersey electric companies' procurement of basic supply; New Jersey Ratepayer Advocate. August 2001.

Review of proposed statewide auction for purchase of power requirements. Market power. Risks to ratepayers of proposed auction.

- 189. N.Y. PSC 00-E-1208,** Consolidated Edison rates; City of New York. October 2001.

Geographic allocation of stranded costs. Locational and postage-stamp rates. Causation of stranded costs. Relationship between market prices for power and stranded costs.

- 190. Mass. DTE 01-56,** Berkshire Gas Company; Massachusetts Attorney General. October 2001.

Allocation of gas costs by load shape and season. Competition and cost allocation.

- 191. N.J. BPU EM00020106,** Atlantic City Electric proposed sale of fossil plants; New Jersey Ratepayer Advocate. December 2001.

Current market value of generating plants vs. proposed purchase price.

- 192. Vt. PSB 6545,** Vermont Yankee proposed sale; Vermont Department of Public Service. January 2002.

Comparison of sales price to other nuclear sales. Evaluation of auction design and implementation. Review of auction manager's valuation of bids.

- 193. Conn. Siting Council 217,** Connecticut Light & Power proposed transmission line from Plumtree to Norwalk; Connecticut Office of Consumer Counsel. March 2002.

Nature of transmission problems. Potential for conservation and distributed resources to defer, reduce or avoid transmission investment. CL&P transmission planning process. Joint testimony with John Plunkett.

- 194. Vt. PSB 6596**, Citizens Utilities rates; Vermont Department of Public Service. Direct, March 2002; rebuttal, May 2002.

Review of 1991 decision to commit to long-term uneconomic purchase from Hydro Québec. Alternatives; role of transmission constraints. Calculation of present damages from imprudence.

- 195. Conn. DPUC 01-10-10**, United Illuminating rate plan; Connecticut Office of Consumer Counsel. April 2002

Allocation of excess earnings between shareholders and ratepayers. Asymmetry in treatment of over- and under-earning. Accelerated amortization of stranded costs. Effects of power-supply developments on ratepayer risks. Effect of proposed rate plan on utility risks and required return.

- 196. Conn. DPUC 01-12-13RE01**, Seabrook proposed sale; Connecticut Office of Consumer Counsel. July 2002

Comparison of sales price to other nuclear sales. Evaluation of auction design and implementation. Assessment of valuation of purchased-power contracts.

- 197. Ont. Energy Board RP-2002-0120**, review of transmission-system code; Green Energy Coalition. October 2002.

Cost allocation. Transmission charges. Societal cost-effectiveness. Environmental externalities.

- 198. N.J. BPU ER02080507**, Jersey Central Power & Light rates; N.J. Division of the Ratepayer Advocate. Phase I December 2002; Phase II (oral) July 2003.

Prudence of procurement of electrical supply. Documentation of procurement decisions. Comparison of costs for subsidiaries with fixed versus flow-through cost recovery.

- 199. Conn. DPUC 03-07-02**, CL&P rates; AARP. October 2003

Proposed distribution investments, including prudence of prior management of distribution system and utility's failure to make investments previously funded in rates. Cost controls. Application of rate cap. Legislative intent.

- 200. Conn. DPUC 03-07-01**, CL&P transitional standard offer; AARP. November 2003.

Application of rate cap. Legislative intent.

- 201. Vt. PSB 6596**, Vermont Electric Power Company and Green Mountain Power Northwest Reliability transmission plan; Conservation Law Foundation. December 2003.

Inadequacies of proposed transmission plan. Failure of to perform least-cost planning. Distributed resources.

- 202. Ohio PUC 03-2144-EL-ATA**, Ohio Edison, Cleveland Electric, and Toledo Edison Cos. rates and transition charges; Green Mountain Energy Co. February 2004.

Pricing of standard-offer service in competitive markets. Critique of anticompetitive features of proposed standard-offer supply, including non-bypassable charges.

- 203. N.Y. PSC 03-G-1671 & 03-S-1672**, Consolidated Edison company steam and gas rates; City of New York. Direct March 2004; rebuttal April 2004; settlement June 2004.

Prudence and cost allocation for the East River Repowering Project. Gas and steam energy conservation. Opportunities for cogeneration at existing steam plants.

- 204. N.Y. PSC 04-E-0572**, Consolidated Edison rates and performance; City of New York. Direct, September 2004; rebuttal, October 2004.

Consolidated Edison's role in promoting adequate supply and demand resources. Integrated resource and T&D planning. Performance-based ratemaking and streetlighting.

- 205. Ont. Energy Board RP 2004-0188**, cost recovery and DSM for Ontario electric-distribution utilities; Green Energy Coalition. Exhibit, December 2004.

Differences in ratemaking requirements for customer-side conservation and demand management versus utility-side efficiency improvements. Recovery of lost revenues or incentives. Reconciliation mechanism.

- 206. Mass. DTE 04-65**, Cambridge Electric Light Co. streetlighting; City of Cambridge. Direct, October 2004; supplemental, January 2005.

Calculation of purchase price of street lights by the City of Cambridge.

- 207. N.Y. PSC 04-W-1221**, rates, rules, charges, and regulations of United Water New Rochelle; Town of Eastchester and City of New Rochelle. Direct, February 2005.

Size and financing of proposed interconnection. Rate design. Water-mains replacement and related cost recovery. Lost and unaccounted-for water.

- 208. N.Y. PSC 05-M-0090**, system-benefits charge; City of New York. Comments, March 2005.

Assessment and scope of, and potential for, New York system-benefits charges.

- 209. Md. PSC 9036**, Baltimore Gas & Electric rates; Maryland Office of People's Counsel. Direct, August 2005.

Allocation of costs. Design of rates. Interruptible and firm rates.



- 210. B.C. UC 3698388**, British Columbia Hydro resource-acquisition plan; British Columbia Sustainable Energy Association and Sierra Club of Canada BC Chapter. September 2005.
- Renewable energy and DSM. Economic tests of cost-effectiveness. Costs avoided by DSM.
- 211. Conn. DPUC 05-07-18**, financial effect of long-term power contracts; Connecticut Office of Consumer Counsel. September 2005.
- Assessment of effect of DSM, distributed generation, and capacity purchases on financial condition of utilities.
- 212. Conn. DPUC 03-07-01RE03 & 03-07-15RE02**, incentives for power procurement; Connecticut Office of Consumer Counsel. Direct, September 2005; Additional, April 2006.
- Utility obligations for generation procurement. Application of standards for utility incentives. Identification and quantification of effects of timing, load characteristics, and product definition.
- 213. Conn. DPUC Docket 05-10-03**, Connecticut L&P; time-of-use, interruptible, and seasonal rates; Connecticut Office of Consumer Counsel. Direct and Supplemental Testimony February 2006.
- Seasonal and time-of-use differentiation of generation, congestion, transmission and distribution costs; fixed and variable peak-period timing; identification of pricing seasons and seasonal peak periods; cost-effectiveness of time-of-use rates.
- 214. Ont. Energy Board Case EB-2005-0520**, Union Gas rates; School Energy Coalition. Evidence, April 2006.
- Rate design related to splitting commercial rate class into two classes. New break point, cost allocation, customer charges, commodity rate blocks.
- 215. Ont. Energy Board EB-2006-0021**, Natural-gas demand-side-management generic issues proceeding; School Energy Coalition. Evidence, June 2006.
- Multi-year planning and budgeting; lost-revenue adjustment mechanism; determining savings for incentives; oversight; program screening.
- 216. Ind. URC 42943 and 43046**, Vectren Energy DSM proceedings; Citizens Action Coalition. Direct, June 2006.
- Rate decoupling and energy-efficiency goals.
- 217. Penn. PUC 00061346**, Duquesne Lighting; Real-time pricing; PennFuture. Direct, July 2006; surrebuttal August 2006.

Real-time and time-dependent pricing; benefits of time-dependent pricing; appropriate metering technology; real-time rate design and customer information

- 218. Penn. PUC R-00061366 et al.,** rate-transition-plan proceedings of Metropolitan Edison and Pennsylvania Electric; Real-time pricing; PennFuture. Direct, July 2006; surrebuttal August 2006.

Real-time and time-dependent pricing; appropriate metering technology; real-time rate design and customer information.

- 219. Conn. DPUC 06-01-08,** Connecticut L&P procurement of power for standard service and last-resort service; Connecticut Office of Consumer Counsel. Reports and technical hearings quarterly since September 2006 to October 2013.

Conduct of auction; review of bids; comparison to market prices; selection of winning bidders.

- 220. Conn. DPUC 06-01-08,** United Illuminating procurement of power for standard service and last-resort service; Connecticut Office of Consumer Counsel. Reports and technical hearings quarterly August 2006 to October 2013.

Conduct of auction; review of bids; comparison to market prices; selection of winning bidders.

- 221. N.Y. PSC Case No. 06-M-1017,** policies, practices, and procedures for utility commodity supply service; City of New York. Comments, November and December 2006.

Multi-year contracts, long-term planning, new resources, procurement by utilities and other entities, cost recovery.

- 222. Conn. DPUC 06-01-08,** procurement of power for standard service and last-resort service, lessons learned; Connecticut Office Of Consumer Counsel. Comments and Technical Conferences December 2006 and January 2007.

Sharing of data and sources; benchmark prices; need for predictability, transparency and adequate review; utility-owned resources; long-term firm contracts.

- 223. Ohio PUC PUCO 05-1444-GA-UNC,** recovery of conservation costs, decoupling, and rate-adjustment mechanisms for Vectren Energy Delivery of Ohio; Ohio Consumers' Counsel. February 2007.

Assessing cost-effectiveness of natural-gas energy-efficiency programs. Calculation of avoided costs. Impact on rates. System benefits of DSM.

- 224. N.Y. PSC 06-G-1332,** Consolidated Edison Rates and Regulations; City of New York. March 2007.

Gas energy efficiency: benefits to customers, scope of cost-effective programs, revenue decoupling, shareholder incentives.

- 225. Alb. EUB 1500878**, ATCo Electric rates; Association of Municipal Districts & Counties and Alberta Federation of Rural Electrical Associations. May 2007.

Direct assignment of distribution costs to street lighting. Cost causation and cost allocation. Minimum-system and zero-intercept classification.

- 226. Conn. DPUC 07-04-24**, review of capacity contracts under Energy Independence Act; Connecticut Office of Consumer Counsel. Direct (with Jonathan Wallach), June 2007.

Assessment of proposed capacity contracts for new combined-cycle, peakers and DSM. Evaluation of contracts for differences, modeling of energy, capacity and forward-reserve markets. Corrections of errors in computation of costs, valuation of energy-price effects of peakers, market-driven expansion plans and retirements, market response to contracted resource additions, DSM proposal evaluation.

- 227. N.Y. PSC 07-E-0524**, Consolidated Edison electric rates; City of New York. September 2007.

Energy-efficiency planning. Recovery of DSM costs. Decoupling of rates from sales. Company incentives for DSM. Advanced metering. Resource planning.

- 228. Man. PUB 136-07**, Manitoba Hydro rates; Resource Conservation Manitoba and Time to Respect Earth's Ecosystem. February 2008.

Revenue allocation, rate design, and demand-side management. Estimation of marginal costs and export revenues.

- 229. Mass. EFSB 07-7, DPU 07-58 & -59**; proposed Brockton Power Company plant; Alliance Against Power Plant Location. March 2008

Regional supply and demand conditions. Effects of plant construction and operation on regional power supply and emissions.

- 230. Conn. DPUC 08-01-01**, peaking generation projects; Connecticut Office of Consumer Counsel. Direct (with Jonathan Wallach), April 2008.

Assessment of proposed peaking projects. Valuation of peaking capacity. Modeling of energy margin, forward reserves, other project benefits.

- 231. Ont. Energy Board 2007-0905**, Ontario Power Generation payments; Green Energy Coalition. April 2008.

Cost of capital for Hydro and nuclear investments. Financial risks of nuclear power.

- 232. Utah PSC 07-035-93**, Rocky Mountain Power Rates; Utah Committee of Consumer Services. July 2008

Cost allocation and rate design. Cost of service. Correct classification of generation, transmission, and purchases.

- 233. Ont. Energy Board** 2007-0707, Ontario Power Authority integrated system plan; Green Energy Coalition, Penimba Institute, and Ontario Sustainable Energy Association. Evidence (with Jonathan Wallach and Richard Mazzini), August 2008.

Critique of integrated system plan. Resource cost and characteristics; finance cost. Development of least-cost green-energy portfolio.

- 234. N.Y. PSC** 08-E-0596, Consolidated Edison electric rates; City of New York. September 2008.

Estimated bills, automated meter reading, and advanced metering. Aggregation of building data. Targeted DSM program design. Using distributed generation to defer T&D investments.

- 235. Conn. DPUC** 08-07-01, Integrated resource plan; Connecticut Office of Consumer Counsel. September 2008.

Integrated resource planning scope and purpose. Review of modeling and assumptions. Review of energy efficiency, peakers, demand response, nuclear, and renewables. Structuring of procurement contracts.

- 236. Man. PUB** 2008 MH EIR, Manitoba Hydro intensive industrial rates; Resource Conservation Manitoba and Time to Respect Earth's Ecosystem. November 2008.

Marginal costs. Rate design. Time-of-use rates.

- 237. Md. PSC** 9036, Columbia Gas rates; Maryland Office of People's Counsel. January 2009.

Cost allocation and rate design. Critique of cost-of-service studies.

- 238. Vt. PSB** 7440, extension of authority to operate Vermont Yankee; Conservation Law Foundation and Vermont Public Interest Research Group. Direct, February 2009; Surrebuttal, May 2009.

Adequacy of decommissioning funding. Potential benefits to Vermont of revenue-sharing provision. Risks to Vermont of underfunding decommissioning fund.

- 239. N.S. UARB** 01439, Nova Scotia Power DSM and cost recovery; Nova Scotia Consumer Advocate. May 2009.

Recovery of demand-side-management costs and lost revenue.

- 240. N.S. UARB** 0496, proposed biomass project; Nova Scotia Consumer Advocate. June 2009.

Procedural, planning, and risk issues with proposed power-purchase contract. Biomass price index. Nova Scotia Power's management of other renewable contracts.

- 241. Conn. Siting Council 370A**, Connecticut Light & Power transmission projects; Connecticut Office of Consumer Counsel. July 2009.

Need for transmission projects. Modeling of transmission system. Realistic modeling of operator responses to contingencies

- 242. Mass. DPU 09-39**, NGrid rates; Mass. Department of Energy Resources. August 2009.

Revenue-decoupling mechanism. Automatic rate adjustments.

- 243. Utah PSC 09-035-23**, Rocky Mountain Power rates; Utah Office of Consumer Services. Direct, October 2009; rebuttal, November 2009.

Cost-of-service study. Cost allocators for generation, transmission, and substation.

- 244. Utah PSC 09-035-15**, Rocky Mountain Power energy-cost-adjustment mechanism; Utah Office of Consumer Services. Direct, November 2009; surrebuttal, January 2010.

Automatic cost-adjustment mechanisms. Net power costs and related risks. Effects of energy-cost-adjustment mechanisms on utility performance.

- 245. Penn. PUC R-2009-2139884**, Philadelphia Gas Works energy efficiency and cost recovery; Philadelphia Gas Works. December 2009.

Avoided gas costs. Recovery of efficiency-program costs and lost revenues. Rate impacts of DSM.

- 246. B.C. UC 3698573**, British Columbia Hydro rates; British Columbia Sustainable Energy Association and Sierra Club British Columbia. February 2010.

Rate design and energy efficiency.

- 247. Ark. PSC 09-084-U**, Entergy Arkansas rates; National Audubon Society and Audubon Arkansas. Direct, February 2010; surrebuttal, April 2010.

Recovery of revenues lost to efficiency programs. Determination of lost revenues. Incentive and recovery mechanisms.

- 248. Ark. PSC 10-010-U**, Energy efficiency; National Audubon Society and Audubon Arkansas. Direct, March 2010; reply, April 2010.

Regulatory framework for utility energy-efficiency programs. Fuel-switching programs. Program administration, oversight, and coordination. Rationale for commercial and industrial efficiency programs. Benefit of energy efficiency.

- 249. Ark. PSC 08-137-U**, Generic rate-making; National Audubon Society and Audubon Arkansas. Direct, March 2010; supplemental, October 2010; reply, October 2010.

Calculation of avoided costs. Recovery of utility energy-efficiency-program costs and lost revenues. Shareholder incentives for efficiency-program performance.

- 250. Plymouth, Mass., Superior Court** Civil Action No. PLCV2006-00651-B (Hingham Municipal Lighting Plant v. Gas Recovery Systems LLC et al.), Breach of agreement; defendants. Affidavit, May 2010.

Contract interpretation. Meaning of capacity measures. Standard practices in capacity agreements. Power-pool rules and practices. Power planning and procurement.

- 251. N.S. UARB 02961**, Port Hawkesbury biomass project; Nova Scotia Consumer Advocate. June 2010.

Least-cost planning and renewable-energy requirements. Feasibility versus alternatives. Unknown or poorly estimated costs.

- 252. Mass. DPU 10-54**, NGrid purchase of long-term power from Cape Wind; Natural Resources Defense Council et al. July 2010.

Effects of renewable-energy projects on gas and electric market prices. Impacts on system reliability and peak loads. Importance of PPAs to renewable development. Effectiveness of proposed contracts as price edges.

- 253. Md. PSC 9230**, Baltimore Gas & Electric rates; Maryland Office of People's Counsel. Direct, July 2010; rebuttal, surrebuttal, August 2010.

Allocation of gas- and electric-distribution costs. Critique of minimum-system analyses and direct assignment of shared plant. Allocation of environmental compliance costs. Allocation of revenue increases among rate classes.

- 254. Ont. Energy Board 2010-0008**, Ontario Power Generation facilities charges; Green Energy Coalition. Evidence, August 2010.

Critique of including a return on CWIP in current rates. Setting cost of capital by business segment.

- 255. N.S. UARB Matter No. 03454**, Heritage Gas rates; Nova Scotia Consumer Advocate. October 2010.

Cost allocation. Cost of capital. Effect on rates of growth in sales.

- 256. Man. PUB 17/10**, Manitoba Hydro rates; Resource Conservation Manitoba and Time to Respect Earth's Ecosystem. December 2010.

Revenue-allocation and rate design. DSM program.

- 257. N.S. UARB 03665**, Nova Scotia Power depreciation rates; Nova Scotia Consumer Advocate. February 2011.  
Depreciation and rates.
- 258. New Orleans City Council UD-08-02**, Entergy IRP rules; Alliance for Affordable Energy. December 2010.  
Integrated resource planning: Purpose, screening, cost recovery, and generation planning.
- 259. N.S. UARB NSPI-P-892**, depreciation Rates of Nova Scotia Power; Nova Scotia Consumer Advocate. February 2011.  
Steam-plant retirement dates, post-retirement use, timing of decommissioning and removal costs.
- 260. N.S. UARB 03632**, renewable-energy community-based feed-in tariffs; Nova Scotia Consumer Advocate. March 2011.  
Adjustments to estimate of cost-based feed-in tariffs. Rate effects of feed-in tariffs.
- 261. Mass. EFSB 10-2/DPU 10-131, 10-132**; NStar transmission; Town of Sandwich, Mass. Direct, May 2011; Surrebuttal, June 2011.  
Need for new transmission; errors in load forecasting; probability of power outages.
- 262. Utah PSC 10-035-124**, Rocky Mountain Power rate case; Utah Office of Consumer Services. June 2011.  
Load data, allocation of generation plants, scrubbers, power purchases, and service drops. Marginal cost study: inclusion of all load-related transmission projects, critique of minimum- and zero-intercept methods for distribution. Residential rate design.
- 263. N.S. UARB 04104**; Nova Scotia Power general rate application; Nova Scotia Consumer Advocate. August 2011.  
Cost allocation: allocation of costs of wind power and substations. Rate design: marginal-cost-based rates, demand charges, time-of-use rates.
- 264. N.S. UARB 04175**, Load-retention tariff; Nova Scotia Consumer Advocate. August 2011.  
Marginal cost of serving very large industrial electric loads; risk, incentives and rate design.
- 265. Ark. PSC 10-101-R**, Rulemaking re self-directed energy efficiency for large customers; National Audubon Society and Audubon Arkansas. July 2011.

Structuring energy-efficiency programs for large customers.

- 266. Okla. CC PUD 201100077**, current and pending federal regulations and legislation affecting Oklahoma utilities; Sierra Club. Comments July, October 2011; presentation July 2011.

Challenges facing Oklahoma coal plants; efficiency, renewable and conventional resources available to replace existing coal plants; integrated environmental compliance planning.

- 267. Nevada PUC 11-08019**, integrated analysis of resource acquisition, Sierra Club. Comments, September 2011; hearing, October 2011.

Scoping of integrated review of cost-effectiveness of continued operation of Reid Gardner 1–3 coal units.

- 268. La. PSC R-30021**, Louisiana integrated-resource-planning rules; Alliance for Affordable Energy. Comments, October 2011.

Scoping of integrated review of cost-effectiveness of continued operation of Reid Gardner 1–3 coal units.

- 269. Okla. CC PUD 201100087**, Oklahoma Gas and Electric Company electric rates; Sierra Club. November 2011.

Resource monitoring and acquisition. Benefits to ratepayers of energy conservation and renewables. Supply planning

- 270. Ky. PSC 2011-00375**, Kentucky utilities' purchase and construction of power plants; Sierra Club and National Resources Defense Council. December 2011.

Assessment of resources, especially renewables. Treatment of risk. Treatment of future environmental costs.

- 271. N.S. UARB M04819**, demand-side-management plan of Efficiency Nova Scotia; Nova Scotia Consumer Advocate. May 2012.

Avoided costs. Allocation of costs. Reporting of bill effects.

- 272. Kansas CC 12-GIMX-337-GIV**, utility energy-efficiency programs; The Climate and Energy Project. June 2012.

Cost-benefit tests for energy-efficiency programs. Collaborative program design.

- 273. N.S. UARB M04862**, Port Hawksbury load-retention mechanism; Nova Scotia Consumer Advocate. June 2012.

Effect on ratepayers of proposed load-retention tariff. Incremental capital costs, renewable-energy costs, and costs of operating biomass cogeneration plant.

- 274. Utah PSC 11-035-200**, Rocky Mountain Power Rates; Utah Office of Consumer Council. June 2012.



Cost allocation. Estimation of marginal customer costs.

- 275. Ark. PSC** 12-008-U, environmental controls at Southwestern Electric Power Company's Flint Creek plant; Sierra Club. Direct, June 2012; rebuttal, August 2012; further, March 2013.

Costs and benefits of environmental retrofit to permit continued operation of coal plant, versus other options including purchased gas generation, efficiency, and wind. Fuel-price projections. Need for transmission upgrades.

- 276. U.S. EPA** EPA-R09-OAR-2012-0021, air-quality implementation plan; Sierra Club. September 2012.

Costs, financing, and rate effects of Apache coal-plant scrubbers. Relative incomes in service territories of Arizona Coop and other utilities.

- 277. Arkansas PSC** Docket No. 07-016-U; Entergy Arkansas' integrated resource plan; Audubon Arkansas. Comments, September 2012.

Estimation of future gas prices. Estimation of energy-efficiency potential. Screening of resource decisions. Wind costs.

- 278. Vt. PSB** 7862, Entergy Nuclear Vermont and Entergy Nuclear Operations petition to operate Vermont Yankee; Conservation Law Foundation. October 2012.

Effect of continued operation on market prices. Value of revenue-sharing agreement. Risks of underfunding decommissioning fund.

- 279. Man. PUB** 2012-13 GRA, Manitoba Hydro rates; Green Action Centre. November 2012.

Estimation of marginal costs. Fuel switching.

- 280. N.S. UARB** M05339, Capital Plan of Nova Scotia Power; Nova Scotia Consumer Advocate. January 2013.

Economic and financial modeling of investment. Treatment of AFUDC.

- 281. N.S. UARB** M05416, South Canoe wind project of Nova Scotia Power; Nova Scotia Consumer Advocate. January 2013.

Revenue requirements. Allocation of tax benefits. Ratemaking.

- 282. N.S. UARB** 05419; Maritime Link transmission project and related contracts, Nova Scotia Consumer Advocate and Small Business Advocate. Direct, April 2013; supplemental (with Seth Parker), November 2013.

Load forecast, including treatment of economy energy sales. Wind power cost forecasts. Cost effectiveness and risk of proposed project. Opportunities for improving economics of project.

- 283. Ont. Energy Board** 2012-0451/0433/0074, Enbridge Gas Greater Toronto Area project; Green Energy Coalition. June 2013, revised August 2013.
- Estimating gas pipeline and distribution costs avoidable through gas DSM and curtailment of electric generation. Integrating DSM and pipeline planning.
- 284. N.S. UARB** 05092, tidal-energy feed-in-tariff rate; Nova Scotia Consumer Advocate. August 2013.
- Purchase rate for test and demonstration projects. Maximizing benefits under rate-impact caps. Pricing to maximize provincial advantage as a hub for emerging tidal-power industry.
- 285. N.S. UARB** 05473, Nova Scotia Power 2013 cost-of-service study; Nova Scotia Consumer Advocate. October 2013.
- Cost-allocation and rate design.
- 286. B.C. UC** 3698715 & 3698719; performance-based ratemaking plan for FortisBC companies; British Columbia Sustainable Energy Association and Sierra Club British Columbia. Direct (with John Plunkett), December 2013.
- Rationale for enhanced gas and electric DSM portfolios. Correction of utility estimates of electric avoided costs. Errors in program screening. Program potential. Recommended program ramp-up rates.
- 287. Conn. PURA** Docket No. 14-01-01, Connecticut Light and Power Procurement of Standard Service and Last-Resort Service. July and October 2014.
- Proxy for review of bids. Oversight of procurement and selection process.
- 288. Conn. PURA** Docket No. 14-01-02, United Illuminating Procurement of Standard Service and Last-Resort Service. January, April, July, and October 2014.
- Proxy for review of bids. Oversight of procurement and selection process.
- 289. Man. PUB** 2014, need for and alternatives to proposed hydro-electric facilities; Green Action Centre. Evidence (with Wesley Stevens) February 2014.
- Potential for fuel switching, DSM, and wind to meet future demand.
- 290. Utah PSC** 13-035-184, Rocky Mountain Power Rates; Utah Office of Consumer Services. May 2014.
- Class cost allocation. Classification and allocation of generation plant and purchased power. Principles of cost-causation. Design of backup rates.
- 291. Minn. PSC** E002/GR-13-868, Northern States Power rates; Clean Energy Intervenor. Direct, June 2014; rebuttal, July 2014; surrebuttal, August 2014.
- Inclining-block residential rate design. Rationale for minimizing customer charges.

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Effect of proposed merger on Consumer bills, renewable energy, energy efficiency, and climate goals.

- 294. N.S. UARB M06514**, 2015 capital-expenditure plan of Nova Scotia Power; Nova Scotia Consumer Advocate. January 2015.

Economic evaluation of proposed projects. Treatment of AFUDC, overheads, and replacement costs of lost generation. Computation of rate effects of spending plan.

- 295. Md. PSC 9153 et al.**, Maryland energy-efficiency programs; Maryland Office of People's Counsel. January 2015.

Costs avoided by demand-side management. Demand-reduction-induced price effects.

- 296. Québec Régie de L'énergie R-3876-2013** phase 1, Gaz Métro cost allocation and rate structure; Regroupement des organismes environnementaux en énergie and Union des consommateurs. February 2015

Classification of the area-spanning system; minimum system and more realistic approaches. Allocation of overhead, energy-efficiency, gas-supply, engineering-and-planning, and billing costs.

- 297. Conn. PURA Docket No. 15-01-01**, Connecticut Light and Power Procurement of Standard Service and Last-Resort Service. February and July 2015.

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- 298. Conn. PURA Docket No. 15-01-02**, United Illuminating Procurement of Standard Service and Last-Resort Service. February, July, and October 2015.

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- 299. Ky. PSC 2014-00371**, Kentucky Utilities Company electric rates; Sierra Club. March 2015.

Review basis for higher customer charges, including cost allocation. Design of time-of-day rates.

- 300. Ky. PSC 2014-00372**, Louisville Gas and Electric Company electric rates; Sierra Club. March 2015.

Review basis for higher customer charges, including cost allocation. Design of time-of-day rates.

- 301. Mich. PSC U-17767**, DTE Electric Company rates; Michigan Environmental Council, Sierra Club, and Natural Resource Defense Council. May 2015.

Cost effectiveness of pollution-control retrofits versus retirements. Market prices. Costs of alternatives.

- 302. N.S. UARB M06733**, supply agreement between Efficiency One and Nova Scotia Power; Nova Scotia Consumer Advocate. June 2015.

Avoided costs. Cost-effectiveness screening of DSM. Portfolio design. Affordability and bill effects.

- 303. Penn. PUC P-2014-2459362**, Philadelphia Gas Works DSM, universal-service, and energy-conservation plans; Philadelphia Gas Works. Direct, May 2015; Rebuttal, July 2015.

Avoided costs. Recovery of lost margin.

- 304. Ont. Energy Board EB-2015-0029/0049**, 2015–2020 DSM Plans Of Enbridge Gas Distribution and Union Gas, Green Energy Coalition. Evidence July 31, 2015, Corrected August 12, 2015.

Avoided costs: price mitigation, carbon prices, marginal gas supply costs, avoidable distribution costs, avoidable upstream costs (including utility-owned pipeline facilities).

- 305. PUC Ohio Case No. 14-1693-EL-RDR**, AEP Ohio Affiliate purchased-power agreement, Sierra Club. September 2015.

Economics of proposed PPA, market energy and capacity projections. Risk shifting. Lack of price stability and reliability benefits. Market viability of PPA units.

- 306. N.S. UARB Matter No. M06214**, NS Power Renewable-to-Retail rate, Nova Scotia Consumer Advocate. November 2015.

Review of proposed design of rate for third-party sales of renewable energy to retail customers. Distribution, transmission and generation charges.

- 307. PUC Texas Docket No. 44941**, El Paso Electric rates; Energy Freedom Coalition of America. December 2015.

Cost allocation and rate design. Effect of proposed DG rate on solar customers. Load shapes of residential customers with and without solar. Problems with demand charges.

- 308. N.S. UARB** Matter No. M07176, NS Power 2016 Capital Expenditures Plan, Nova Scotia Consumer Advocate. February 2016.

Economic evaluation of proposed projects, including replacement energy costs and modeling of equipment failures. Treatment of capitalized overheads and depreciation cash flow in computation of rate effects of spending plan.

- 309. Md. PSC** Case No. 9406, BGE Application for recovery of Smart Meter costs, Maryland Office of People's Counsel. Direct February 2016, Rebuttal March 2016, Surrebuttal March 2016.

Assessment of benefits of Smart Meter programs for energy revenue, load reductions and price mitigation; capacity load reductions and price mitigation; free riders and load shifting in peak-time rebate (PTR) program; cost of PTR participation; effect of load reductions on PJM capacity obligations, capacity prices and T&D costs.

## ACRONYMS AND INITIALISMS

APS	Alleghany Power System	LRAM	Lost-Revenue-Adjustment Mechanism
ASLB	Atomic Safety and Licensing Board	NARUC	National Association of Regulatory Utility Commissioners
BEP	Board of Environmental Protection	NEPOOL	New England Power Pool
BPU	Board of Public Utilities	NRC	Nuclear Regulatory Commission
BRC	Board of Regulatory Commissioners	OCA	Office of Consumer Advocate
CC	Corporation Commission	PSB	Public Service Board
CMP	Central Maine Power	PBR	Performance-based Regulation
DER	Department of Environmental Regulation	PSC	Public Service Commission
DPS	Department of Public Service	PUC	Public Utility Commission
DQE	Duquesne Light	PUB	Public Utilities Board
DPUC	Department of Public Utilities Control	PURA	Public Utility Regulatory Authority
DSM	Demand-Side Management	PURPA	Public Utility Regulatory Policy Act
DTE	Department of Telecommunications and Energy	SCC	State Corporation Commission
EAB	Environmental Assessment Board	UARB	Utility and Review Board
EFSB	Energy Facilities Siting Board	USAEE	U.S. Association of Energy Economists
EFSC	Energy Facilities Siting Council	UC	Utilities Commission
EUB	Energy and Utilities Board	URC	Utility Regulatory Commission
FERC	Federal Energy Regulatory Commission	UTC	Utilities and Transportation Commission
ISO	Independent System Operator		

## Prior Testimony Before the Texas PUC

- Texas PUC 3298 Gulf States Utilities rate case; East Texas Legal Services. August 25 1980. Inter-class revenue allocations, including production plant in-service, O&M, CWIP, nuclear fuel in progress, amortization of canceled plant residential rate design; interruptible rates; off-peak rates.
- Texas PUC 6184 Economic viability of South Texas Nuclear Plant #2; Committee for Consumer Rate Relief. August 17 1987. Nuclear plant operating parameter projections; capacity factor, O&M, capital additions, decommissioning, useful life. STNP-2 cost and schedule projections. Potential for conservation.
- Texas PUC 11000 Application of Houston Lighting and Power company for a certificate of convenience and necessity for the DuPont Project; Destec Energy, Inc. September 28 1992. Valuation of environmental externalities from fossil fuel combustion and the application to the evaluation of proposed cogeneration facility.
- Texas PUC 44941 Application of El Paso Electric Company to Change Rates; residential cost of service and rate design related to solar DG customers.