

MATTER NO. M06214

Nova Scotia Power Inc. (NSPI) Proceeding concerning Sales of Renewable Low
Impact Electricity Generated within Nova Scotia by a Retail Seller to a Retail
Customer pursuant to The Electricity Act

DIRECT TESTIMONY OF
PAUL CHERNICK
ON BEHALF OF
THE CONSUMER ADVOCATE

Resource Insight, Inc.

NOVEMBER 20, 2015

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Exhibit PLC-2 *Professional qualifications of Paul Chernick*

1 **I. Identification**

2 **Q: Mr. Chernick, please state your name, occupation, and business address.**

3 A: I am Paul L. Chernick. I am the president of Resource Insight, Inc., 5 Water St.,
4 Arlington, Massachusetts.

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

6 A: I summarize my education and experience (including my appearances before
7 this Board) in Exhibit PLC-1. I summarize my professional qualifications in
8 Exhibit PLC-2.

9 **II. Introduction and Summary**

10 **Q: On whose behalf are you testifying?**

11 A: My testimony is sponsored by the Nova Scotia Consumer Advocate.

12 **Q: What is the purpose of your testimony?**

13 A: I review some aspects of the filing by Nova Scotia Power (NS Power) in this
14 proceeding, regarding the rates to be paid by customers taking service under the
15 Renewable-to-Retail (RtR) option, and by the Licensed Renewable Suppliers
16 (LRSs) that would sell them renewable energy.

17 *A. Standard Retail Rate Unbundling*

18 **Q: How have the New England states restructured their electric utility charges,
19 to allow customers to purchase generation services from any provider,
20 including renewable power?**

1 A: In New England (particularly Massachusetts and Connecticut, with which I am
2 most familiar), the utilities charge separately for:

- 3 • Distribution
- 4 • Transmission (which is differentiated from distribution because
5 transmission rates are largely set by the Federal Energy Regulatory
6 Commission, rather than the state regulators)
- 7 • Stranded generation costs (and sometimes other restructuring costs).
8 Stranded costs are determined as the differences between book value and
9 sales price for utility generation; as the buyout cost for restructured
10 contracts; and as the difference between contract payments and market
11 prices.
- 12 • Market-based generation option for customers who do not select another
13 power supplier (i.e., non-shopping customers)

14 The basic principle in this restructuring is that the rates should be the same
15 for shopping and non-shopping customers, so long as the utility service they
16 receive is the same.

17 **Q: Are there any difficulties in importing this model to Nova Scotia?**

18 A: Yes. Nova Scotia does not have competitive markets for electric energy or
19 capacity, so there are no objective measures of hourly energy values or annual
20 capacity values. NS Power has not divested its generation resources, so there is
21 no objective valuation of stranded costs, leaving stranded costs entwined with
22 other fixed costs.

23 Nonetheless, Nova Scotia can aim to charge the equal rates for equivalent
24 services.

25 **Q: Are any of these conditions likely to change in the near future?**

1 A: Yes. Completion of upgrades in the transmission system between Nova Scotia
2 load and generation centers and New Brunswick are expected to allow sales to
3 and purchases from the New England ISO, potentially creating a market price
4 that can be used for estimated stranded costs and the difference between spillage
5 and backup power values.

6 The Board should revisit the pricing of the charges to RtR customers and
7 LRSs once the new integration is established, in a GRA or by way of a separate
8 docketed proceeding.

9 **Q: What are your recommendations regarding the proposed RtR rates?**

10 A: I recommend that the Board make the following changes in NS Power's
11 proposal:

- 12 • Ensure that the distribution and transmission rates charged to customers
13 within any tariff be the same, regardless of whether a customer is a full-
14 service NS Power customer or an RtR customer, and reflect the R/C ratios in
15 generation charges, to make the RtR transition revenue-neutral.
- 16 • Reorganize the generation energy charges, so that each LRS pays for the
17 value of the top-up energy that it takes from NS Power and is paid the value
18 of the energy it spills to NS Power, without the multiple levels of
19 assumptions required in the NS Power approach.
- 20 • Reduce the fixed energy charge to reflect the difference between the
21 embedded energy-allocated costs and the marginal costs used in setting the
22 spill rates.
- 23 • Instruct NS Power to include all avoidable energy-related costs in its
24 computation of variable generation costs, further reducing the fixed energy-
25 allocated generation charge.

- 1 • Require that NS Power recover stranded fixed energy-related costs for all
2 RtR deliveries, not just for the top-up energy.
- 3 • Recognize the effect of renewable generator location on line losses for LRS
4 billing.
- 5 • Require that NS Power continue to work with stakeholders on the capacity
6 contribution of wind and other renewable resources, as well as the avoided
7 capacity-related costs.
- 8 • Reconcile the RtR language on non-power charges with that in the full-
9 service tariffs.
- 10 • Require that all RtR revenues from charges for fuel, purchased power and
11 ancillary services flow through the FAM.

12 In addition, I urge the Board to clarify that the RtR and LRS rates do not
13 apply to generation behind the customer's meter.

14 **III. Distribution Rates**

15 **Q: Do you have any comment on the distribution rates that NS Power proposes**
16 **to charge to RtR customers?**

17 A: Yes. I believe that the basic principle is that the distribution rates should be the
18 same for all customers in a class, whether they are full-service or RtR
19 customers. So far as I can tell, this principle is applied in every restructured or
20 direct-access jurisdiction in North America.

21 **Q: Does NS Power propose to charge the same rates for all similarly-situated**
22 **customers?**

23 A: Almost, but not quite. NS Power is not proposing to fully unbundle the full-
24 service customer rates, at this time, so no direct comparison will be possible
25 between the distribution charges in the full-service rates and in the RtR tariff.

1 But NS Power is proposing to set the RtR distribution rates equal to the
2 distribution costs allocated to each full-service customer class, unitized over the
3 billing determinants (kWh or kW) used in that class.

4 **Q: Why do you say that NS Power's approach would not charge exactly the**
5 **same distribution rate for the RtR customers as for the full-service**
6 **customers?**

7 A: The full-service rates do not exactly equal the allocated costs by class. It is my
8 understanding that the Board does not require that the revenues collected from
9 each class exactly match the allocated costs because (1) that would cause
10 unnecessary variability in rates from one GRA to the next and (2) the cost of
11 service study is not perfectly accurate or equitable. As a result, the various
12 classes have differing ratios of revenues to allocated costs (or R/C ratios).

13 Since NS Power is not proposing to adjust the distribution costs allocated
14 in the cost of service study by the R/C ratios for the purpose of setting the RtR
15 distribution rate, a customer in a class with a computed R/C ratio less than 1.0
16 (such as the residential class) electing RtR service would experience a
17 distribution-rate surcharge, while a customer in a class with a computed R/C
18 ratio greater than 1.0 (such as the small-commercial class) electing RtR service
19 would get a discount.¹

20 Since there should be no discrimination between full-requirements and RtR
21 customers, NS Power should apply the R/C ratios from the cost of service study
22 to the allocated distribution costs.

23 **Q: Does NS Power apply the R/C ratios to other rate computations, outside the**
24 **cost of service study?**

¹ In the future, of course, the ratios for specific classes may change.

1 A: Yes. NS Power adjusts the allocation of the Annual Adjustment (AA) in the Fuel
2 Adjustment Mechanism (FAM) by the R/C ratios.

3 **Q: How should the Board ensure non-discrimination in RtR rates in the**
4 **future?**

5 A: The Board should require that NS Power, in its next general rate application,
6 prepare unbundled rate tariffs into the functions of distribution, transmission and
7 generation. The resulting distribution and transmission charges should apply to
8 both full-service and RTR customers.

9 **IV. Transmission Rates**

10 **Q: What principle should the Board apply to setting transmission rates for**
11 **RtR service.**

12 A: Since each customer receives the same transmission service and imposes the
13 same transmission cost regardless of whether it takes RtR or fully-bundled
14 service, the transmission rate should be the same for RtR and full-service tariffs.

15 **Q: Is NS Power's proposal consistent with that principle?**

16 A: No. NS Power proposes to charge the LRS for transmission service, using the
17 non-coincident peak of the LRS's customers. Since each LRS will have a
18 smaller and (almost certainly) less diverse customer base than NS Power does,
19 the transmission charges for RtR customers would generally be higher than
20 those for full-service customers. This proposal would unfairly burden RtR
21 customers.

22 **Q: How should the Board correct this problem?**

23 A: While there are probably several ways to remove the excess burden on RtR
24 customers, the simplest would be to require that NS Power compute the

1 transmission charges in its full-service rates (including the R/C ratio) and charge
2 those same rates to RtR customers. This correction may require amending the
3 OATT.

4 In the longer term, the Board should order that NS Power unbundle its
5 transmission rate in the same manner I describe in Section III for distribution.

6 **V. Rates for NSPI and LRS Generation**

7 **A. *Spillage and Top-Off***

8 **Q: How would the hourly load of RtR customers be met with renewable
9 generation?**

10 A: Since most renewable energy resources (with the exception of some energy-
11 constrained storage hydro) are not dispatchable or appropriate for dispatch, there
12 will be times when the LRS's renewable supply sources produce more energy
13 than its RtR customers use, resulting in spillage, and other hours in which the
14 renewable generators produce less energy than its RtR customers use, requiring
15 top-off energy. Since there is currently no competitive market that can absorb
16 these swings, NS Power would take the spilled energy and supply the top-off
17 energy.

18 **Q: How does NS Power propose to charge for the differences between
19 generation and consumption in each hour?**

20 A: Based primarily on the output of Plexos runs, NS Power proposes to charge each
21 LRS a fuel cost of 6.65¢/kWh, plus a fixed cost adder of 3.309¢/kWh for top-up
22 energy and credit the LRS 5.27¢/kWh for spilled energy (Application Appendix
23 19). The top-off and spillage energy should be equal over the course of the year,

1 since the LRS is required to provide the same amount of renewable energy as its
2 customers use.²

3 **Q: Are these charges appropriate?**

4 A: No. I have identified six problems with the NS Power proposal.

5 First, NS Power computes the “fuel cost” by estimating a 0.69¢/kWh net
6 cost for a particular combination of load (a flat load shape) and generation (a
7 composite wind load shape for 2014), doubling that cost estimate to
8 1.380¢/kWh, and adding it to the 5.27¢/kWh spill rate. This computation
9 assumes that half the RtR customer load will be supplied as top-off, offset by
10 spillage in other hours. NS Power did not derive this 50% value from the
11 assumptions it used in estimating the net cost of top-off over spillage.

12 I computed the hourly difference between a flat load shape and the wind
13 generation shape that NS Power provided (CA IR-33 Attachment 1) and found
14 that the top-up requirement was more like 40% of the total energy, which would
15 require a 1.725¢/kWh adder. The top-up requirement rose to 42% of total energy
16 with the wind generation and a residential load shape. With a flat generation
17 shape, such as a baseload biomass supplier, the share of total energy supplied by
18 top-up would be about 7% for industrial load and 16% for residential load.
19 Solar, tidal and hydro generation would produce still more ratios of top-up to

² NS Power proposes to purchase any excess energy provided over the year at the spillage rate for up to 10% of the LRS RtR load, falling to as little as 2.635¢/kWh for spill above 30% of the LRS load. (Application Appendix 19, page 3) It is not clear why a small amount of additional spillage would produce so much lower benefits. If surplus energy really has such little value to NS Power, the Company should facilitate export of surplus renewable energy.

1 total energy. In addition, the avoided-cost computations (Appendix 19A) would
2 vary among these load shapes.³

3 Under NS Power's proposal, the fuel cost (both the net cost of top-up over
4 spill and the multiplier to develop the incremental-cost adder) would need to be
5 computed for each combination of generation and load. As shown in NSPI (CA)
6 IR-35, NS Power's estimates of the marginal costs of energy to serve loads
7 varies from \$46.4/MWh for Large Industrial to \$51.7/MWh for Residential, and
8 the value of generation varies from \$44.4/MWh for aggregate wind to
9 \$46.6/MWh for baseload generation to \$47.3/MWh for the Tusket hydro
10 system.⁴ This seems to be an awkward and difficult process, necessitated only
11 by NS Power's arbitrary decision to structure spillage and top-up in this manner.
12 It seems more manageable for NS Power to a single set of time-varying rates for
13 both spillage and top-up.⁵ An LRS that needs top-off at high-priced times and
14 spills at low-price times would pay for the difference in value, without requiring
15 NS Power to guess at the ratio of top-up to energy.⁶

16 **Q: What is the second problem with the NS Power proposal regarding**
17 **generation costs?**

³ The importation of hydro power from Newfoundland over the Maritime Link may result in LRSs offering renewable energy that does not require much, if any, top-up energy. Once that resource is available, the Board may need to address the differentiation of market costs from stranded costs, to ensure that RtR customers pay their share of above-market generation costs.

⁴ The monthly pattern of energy output from Nova Scotia hydro plants varies widely, so individual hydro facilities may have very different generation values.

⁵ The price matrix could reflect time of day and other important drivers of hourly costs, such as the output level of NS Power's wind fleet.

⁶ For RtR customers without hourly metering, NS Power would use a generic load shape, just as it would for its proposed method.

1 A: NS Power derives the fixed-cost adder by subtracting 4.611¢/kWh of fuel and
2 purchased power from the total 7.920¢/kWh allocated on energy, producing net
3 charge of 3.309¢/kWh. Yet the top-up rate already includes 6.65¢/kWh for
4 incremental fuel. NS Power would charge twice for 0.659¢/kWh (the difference
5 between 5.27¢/kWh and 4.611¢/kWh). The fixed-cost energy adder should thus
6 be 1.27¢/kWh based on the rest of NS Power's analysis, or whatever value
7 results from an updated analysis.

8 **Q: What is the third problem with the NS Power proposal regarding**
9 **generation costs?**

10 A: NS Power does not appear to have provided for recovery of the full stranded
11 fixed energy-allocated costs, since this factor would be recovered only from the
12 top-up energy. I see no reason that the fixed-cost energy adder should not be
13 recovered as a stranded-cost charge on all kWh delivered.

14 **Q: What is the fourth problem with the NS Power proposal regarding**
15 **generation costs?**

16 A: Under NS Power's proposal, it could be charging one LRS for top-off at
17 6.65¢/kWh and supplying that power with spill from another LRS at 5.27¢/kWh.
18 This inconsistency could be solved by charging or crediting the same rate for all
19 LRSs in any given hour, as I propose above.

20 **Q: What is the fifth problem with the NS Power proposal regarding generation**
21 **costs?**

22 A: The Plexos runs do not reflect avoided costs that NS Power has recognized
23 elsewhere, including:

- 24 • The effect of energy loads and renewable capacity on NS Power's ability
25 to mothball units during the summer.

- 1 • The effect of energy loads and renewable capacity on NS Power’s ability
- 2 to retire coal plants earlier than currently planned.
- 3 • Variable interim capital additions, including environmental retrofits. (NSPI
- 4 (CA) IR-9)

5 **Q: What is the sixth problem with the NS Power proposal regarding**

6 **generation costs?**

7 A: As with other components of the RtR rates, the generation costs should be

8 adjusted by the class R/C ratios.

9 **B. Loss Factors**

10 **Q: How does NS Power propose to charge LRSs for losses from their**

11 **generators to the RtR customers?**

12 A: NS Power proposes to use the system average loss factor, regardless of where

13 the additional generation is supplied.

14 **Q: Is this approach appropriate?**

15 A: No. When a renewable generator is added to serve RtR customers, transmission

16 losses change depending on the location of the generator. This ignores the

17 importance of generator location, since the change in losses due to the addition

18 of generation varies from an additional 11% on Cape Breton to negative values

19 in the Halifax and Annapolis Valley regions, with some western sites showing

20 negative losses of more than –10% (CA IR-1 Attachment 1). NS Power’s

21 approach would do nothing to discourage LRSs from locating generation in the

22 east, or encouraging construction near Halifax and in the west. Nor would it

23 properly reward or penalize generators based on location.

24 **Q: Why does NS Power propose this inefficient approach?**

1 A: In response to the request “please explain what requires such spatial averaging
2 [of losses], whether law, regulation, physics or data availability,” NS Power
3 provided no legal, regulatory or other requirement, and simply responded:

4 Section 28.5 of the existing Open Access Transmission Tariff addresses real
5 power losses associated with the Network Integration Transmission Tariff.
6 It requires that the Network Customer be responsible for replacing losses
7 associated with all transmission service as calculated by the Transmission
8 Provider in accordance with Schedule 9 of the Tariff. Schedule 9 specifies
9 that for Network Service, the Transmission provider will apply the system
10 average loss factor, which will be calculated annually. (NSPI (CA) IR-1(a)
11 (i))

12 So far as I can tell, this response amounts to “this is way we do it in the
13 OATT.” Since NS Power has proposed other changes to the OATT to
14 accommodate its proposed design of the RtR program, it could propose a similar
15 change for the treatment of losses.⁷

16 **Q: How should losses be computed for the RtR program?**

17 A: The imputed losses should be the losses allocated to the customer’s class in the
18 cost of service study, plus the incremental transmission costs for the renewable
19 generator’s location.

20 **C. Standby Capacity**

21 **Q: How does NS Power propose to charge for standby capacity?**

22 A: NS Power proposes to charge LRSs the average demand-allocated generation
23 costs (\$5.37/kW-month of coincident load over the three winter months), net of
24 the estimated capacity contribution of the LRS’s renewable generators.

25 **Q: Do you have any concerns with this approach?**

⁷ It is not clear to me that the NS Power’s RtR tariffs need to match the OATT in this regard.

1 A: Yes, I have three concerns. First, the rate should be adjusted for the R/C ratios,
2 to maintain rate neutrality between full-requirement and RtR service.

3 Second, NS Power continues to use a 17% capacity contribution for wind,
4 much less than the 25%–30% or so estimated in the GE Energy Nova Scotia
5 Renewable Energy Integration Study (June 28, 2013). NS Power has suggested
6 that repeating the GE Energy study for additional years of data might produce a
7 different result than the year that GE analyzed (and that NS Power claims to
8 have verified), but NS Power has never documented its lower value.⁸

9 Third, NS Power has not provided any estimate of capacity contribution for
10 any other renewable resource.

11 Fourth, NS Power assumes that the capacity contribution of the renewable
12 generation is worth about \$64/kW-year, based on the cost of service study. This
13 embedded cost is likely to be higher than the short-term value of the capacity,
14 although the benefit of mothballing and retirement of older coal plants may
15 approach those levels. In the longer term, the ability to sell capacity into the
16 New England market may result in higher avoided capacity values. This issue
17 will require additional analysis.

18 **VI. Miscellaneous Issues**

19 **Q: What other issues would you like to address?**

20 A: I have two other issues. First, in the proposed distribution tariff for RtR service,
21 NS Power states that “the DT Charges shall include...any applicable costs

⁸ Similarly, NS Power has not provided an analysis of the capacity contribution of ERIS resources. The 2014 IRP promised such an analysis would be provided by late 2016; given the possibility that an ERIS renewable facility may be proposed to serve RtR load, moving the delivery date forward would be desirable.

1 incurred by NS Power resulting from performance of repairs, changes, renewals,
2 improvements or replacements outside of normal working hours, at the RtR
3 Customer's request" (Appendix 17, page 11). It is not clear why this language
4 (which does not appear in the full-service tariffs) is included here, and whether
5 it is intended to cover any situations outside those already covered by NS
6 Power's more detailed Regulations. For example, the Regulations do not appear
7 to contemplate charges to full-service customers for any repairs (except for
8 vandalized streetlights). Unless NS Power can justify this language, it should be
9 deleted. The same rules should apply to all customers.

10 Second, NS Power will need to amend the FAM procedures to capture all
11 RtR revenues from charges for fuel, purchased power and ancillary services.

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

13 **A: Yes.**

Exhibit PLC-1

SUMMARY OF EDUCATION AND EXPERIENCE OF PAUL CHERNICK

Q: Summarize your professional education and experience.

A: I received an SB degree from the Massachusetts Institute of Technology in June 1974 from the Civil Engineering Department, and an SM degree from the Massachusetts Institute of Technology in February 1978 in technology and policy. I have been elected to membership in the civil engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi.

I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters.

My work has considered, among other things, the cost-effectiveness of prospective new electric generation plants and transmission lines, retrospective review of generation-planning decisions, ratemaking for plant under construction, ratemaking for excess and/or uneconomical plant entering service, conservation program design, cost recovery for utility efficiency programs, the valuation of environmental externalities from energy production and use, allocation of costs of service between rate classes and jurisdictions, design of retail and wholesale rates, and performance-based ratemaking and cost recovery in restructured gas and electric industries. My professional qualifications are further summarized in Exhibit PLC-2.

Q: Have you testified previously in utility proceedings?

A: Yes. I have testified nearly 300 times on utility issues before various regulatory, legislative, and judicial bodies, including utility regulators in thirty-five states and six Canadian provinces, and two U.S. Federal agencies.

Q: Have you testified previously regarding energy-efficiency planning?

A: Yes. I have testified in numerous proceedings on avoided costs, program scope, cost recovery, and related issues, as listed in my resume.

Q: Have you previously testified before this Board?

A: Yes. I testified in the Board's review of the following cases:

- Nova Scotia Power's Demand Side Management Plan for 2010 and Demand Side Management Cost Recovery Rider in May 2009 (Matter No. 01439)
- The proposed purchased-power agreement between Nova Scotia Power Inc. and a biomass project to be constructed at the NewPage Port Hawkesbury pulp and paper mill (Matter No. 01496)
- Nova Scotia Power's proposal to build the biomass project at NewPage Port Hawkesbury (Matter No. 02961)
- Heritage Gas's 2010 rate case (Matter No. 03454)
- Nova Scotia Power's proposal to increase production depreciation rates (Matter No. 03665)
- The Board's review of proposed feed-in tariffs for certain distribution-connected renewable projects (Matter No. 03632)
- The Nova Scotia Power 2012 General Rate Application (Matter No. 04104), with respect to cost allocation and rate design

- The Board's review of proposed a proposed load-retention tariff and rate (Matter No. 04175)
- The application of Efficiency Nova Scotia Corporation's Electricity Demand-Side Management Plan for 2013–2015 (Matter No. 04819).
- The application of Nova Scotia Power and Pacific West Commercial Corporation for a load-retention rate mechanism for the Port Hawkesbury paper mill (Matter No. 04862)
- Nova Scotia Power's 2013 Annual Capital Expenditure Plan (Matter No. 05339)
- The application of Nova Scotia Power for approval of the South Canoe Wind Project (Matter No. 05416)
- The Board's review of the Maritime Link proposal (Matter No. 05419).
- Nova Scotia Power's 2013 Cost of Service Study (Matter No. 05473)
- The Board's review of proposed feed-in tariffs for Development Tidal Arrays (Matter No. 05092).
- Nova Scotia Power Annual Capital Expenditure Plan for 2015 (Matter No. 06514).
- The Board's review of the proposed 2016–2018 DSM Plan and energy-efficiency supply agreement between EfficiencyOne and Nova Scotia Power (M06733).

I have also assisted the Consumer Advocate in preparing comments in the Board's reviews of Nova Scotia Power's Nuttby, Digby, and Point Tupper wind-project proposals (Matters Nos. 02195, 02763, and 02983), Nova Scotia Power's Renewable Energy Tax and Accounting Depreciation (Matter No. 03795), the Capital Expenditure Justification Criteria review (Matter No. 04600), the Renewable RFP (Matter No. 04838), the 2014

NS Power Integrated Resource Plan (Matter No. 05522), Port Hawkesbury Paper Load Retention Tariff Report (Matter No. 05803), the renewable-to-retail proceeding (Matter No. 06214), cases related to the NS Power transmission required to support exports to New Brunswick following operation of the Maritime Link (Matter Nos. 06525 and 06660), and the on-going stakeholder process on NS Power's 2014 cost allocation update (Matter No. 06555).

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

“Price Effects as a Benefit of Energy-Efficiency Programs” (with John Plunkett), *2014 ACEEE Summer Study on Energy Efficiency in Buildings* (5) 57–5-69. 2014.

“Environmental Regulation in the Changing Electric-Utility Industry” (with Rachel Brailove), *International Association for Energy Economics Seventeenth Annual North American Conference* (96–105). Cleveland, Ohio: USAEE. 1996.

“The Price is Right: Restructuring Gain from Market Valuation of Utility Generating Assets” (with Jonathan Wallach), *International Association for Energy Economics Seventeenth Annual North American Conference* (345–352). Cleveland, Ohio: USAEE. 1996.

“The Future of Utility Resource Planning: Delivering Energy Efficiency through Distributed Utilities” (with Jonathan Wallach), *International Association for Energy Economics Seventeenth Annual North American Conference* (460–469). Cleveland, Ohio: USAEE. 1996.

“The Future of Utility Resource Planning: Delivering Energy Efficiency through Distribution Utilities” (with Jonathan Wallach), *1996 Summer Study on Energy Efficiency in Buildings*, Washington: American Council for an Energy-Efficient Economy 7(7.47–7.55). 1996.

“The Allocation of DSM Costs to Rate Classes,” *Proceedings of the Fifth National Conference on Integrated Resource Planning*. Washington: National Association of Regulatory Utility Commissioners. May 1994.

“Environmental Externalities: Highways and Byways” (with Bruce Biewald and William Steinhurst), *Proceedings of the Fifth National Conference on Integrated Resource Planning*. Washington: National Association of Regulatory Utility Commissioners. May 1994.

“The Transfer Loss is All Transfer, No Loss” (with Jonathan Wallach), *The Electricity Journal* 6:6 (July 1993).

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“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.

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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.

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, cogeneration, 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. Commerce Commission 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. Commerce Commission 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. Commerce Commission 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. Utility Regulatory Commission**, 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. Utilities Commission 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 Intervenors. 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. Utilities Commission** 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. Commerce Commission 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. Utilities Commission** 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. Utilities Commission** E-2 Sub 669. December 1995.

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

- 136. Arizona Commerce Commission** 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.

Power-supply arrangements between APS's 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.

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

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

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- 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.**
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- 164. Wash. UTC UE-981627, PacifiCorp–Scottish Power merger, Office of the Attorney General. June 1999.**
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- 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.**
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- 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.**
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- 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.**
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- 170. Conn. DPUC 99-08-01, standards for utility restructuring; Connecticut Office of Consumer Counsel. Direct, November 1999; supplemental, January 2000.**

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

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

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

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- 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.

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

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

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- 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.

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

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

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- 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.**
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- 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.**
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- 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.**
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- 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.**
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- 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

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

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- 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.

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- 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.

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- 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.

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- 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.

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- 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.

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- 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. Utilities Commission 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.

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- 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.

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- 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.

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- 216. Ind. Utility Regulatory Commission** 42943 and 43046, Vectren Energy DSM proceedings; Citizens Action Coalition. Direct, June 2006.

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- 217. Penn. PUC** 00061346, Duquesne Lighting; Real-time pricing; PennFuture. Direct, July 2006; surrebuttal August 2006.

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- 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.

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- 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.

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- 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 since August 2006.

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- 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.

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- 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.

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- 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.

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

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- 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.

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- 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

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- 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.

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

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- 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.

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- 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.

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- 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.

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- 243. Utah PSC 09-035-23**, Rocky Mountain Power rates; Utah Office of Consumer Services. Direct, October 2009; rebuttal, November 2009.
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- 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. Utilities Commission 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.
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- 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.**
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- 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. Corporation Commission 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. Corporation Commission** PUD 201100087, Oklahoma Gas and Electric Company electric rates; Sierra Club. November 2011.
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- 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** 04819, 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 Corporation Commission** 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** 04862, 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.
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- 276. U.S. EPA** EPA-R09-OAR-2012-0021, air-quality implementation plan; Sierra Club. September 2012.
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- 277. Arkansas PSC** Docket No. 07-016-U; Entergy Arkansas' integrated resource plan; Audubon Arkansas. Comments, September 2012.
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- 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.
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- 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.
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- 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.
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- 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. Utilities Commission 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.

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- 287. 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.

- 288. Utah PSC** 13-035-184, Rocky Mountain Power Rates; Utah Office of Consumer Services. May 2014.

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- 289. Minn. PSC** E002/GR-13-868, Northern States Power rates; Clean Energy Intervenors. Direct, June 2014; rebuttal, July 2014; surrebuttal, August 2014.

Inclining-block residential rate design. Rationale for minimizing customer charges.

- 290. Cal. PUC** Rulemaking 12-06-013, electric rates and rate structures; Natural Resources Defense Council. September 2014.

Redesigning residential rates to simplify tier structure while maintaining efficiency and conservation incentives. Effect of marginal price on energy consumption. Realistic modeling of Consumer price response. Benefits of minimizing customer charges.

- 291. Md. PSC** 9361, proposed merger of PEPco Holdings into Exelon; Sierra Club and Chesapeake Climate Action Network. Direct, December 2014; surrebuttal, January 2015.

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

- 292. 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.

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

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

- 294. 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.

- 295. 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.

- 296. 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.

- 297. 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.

- 298. 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.

- 299. 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.

- 300. Ont. Energy Board** EB-2015-0029/0049, Enbridge and Union Gas DSM, Green Energy Coalition. July 2015.

Demand-reduction-induced price effects. Benefits of carbon reduction. Avoided distribution costs. Avoided costs of gas supply. Non-price benefits

ACRONYMS AND INITIALISMS

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