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Introduction

1

2 **Q. Please state your name and business address.**

3 A. My name is Scott J. Rubin. My business address is 333 Oak Lane, Bloomsburg, PA.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am an independent consultant and an attorney. My practice is limited to matters
6 affecting the public utility industry.

7 **Q. What is the purpose of your testimony in this case?**

8 A. I have been asked by AARP and its New Hampshire state office to review various aspects
9 of the proposed permanent rate increase, as well as various tariff provisions, filed by
10 Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource" or
11 "Company") in this case.

12 **Q. What are your qualifications to provide this testimony in this case?**

13 A. I have testified as an expert witness before utility commissions or courts in the District of
14 Columbia, the province of Nova Scotia, and the states of Alaska, Arizona, California,
15 Connecticut, Delaware, Kentucky, Illinois, Maine, Maryland, Minnesota, Mississippi,
16 New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, South
17 Carolina, Washington, and West Virginia. I also have testified as an expert witness
18 before federal, state, and local legislative committees. I also have served as a consultant
19 to the staffs of four state utility commissions, as well as to several national utility trade
20 associations, and state and local governments throughout the country. Prior to
21 establishing my own consulting and law practice, I was employed by the Pennsylvania

1 Office of Consumer Advocate from 1983 through January 1994 in increasingly
2 responsible positions. From 1990 until I left state government, I was one of two senior
3 attorneys in that Office. Among my other responsibilities in that position, I had a major
4 role in setting its policy positions on water and electric matters. In addition, I was
5 responsible for supervising the technical staff of that Office. I also testified as an expert
6 witness for that Office on rate design and cost of service issues.

7 Throughout my career, I developed substantial expertise in matters relating to the
8 economic regulation of public utilities. I have published articles, contributed to books,
9 written speeches, and delivered numerous presentations, on both the national and state
10 level, relating to regulatory issues. I have attended numerous continuing education
11 courses involving the utility industry. I also have participated as a faculty member in
12 utility-related educational programs for the Institute for Public Utilities at Michigan State
13 University, the American Water Works Association, and the Pennsylvania Bar Institute.
14 Attachment SJR-1 to this testimony is my curriculum vitae.

15 **Q. Have you published any papers on the topic of electric utility rate design?**

16 A. Yes, in November 2015 I published a paper entitled "Moving Toward Demand-Based
17 Residential Rates" in *The Electricity Journal*.

18 **Q. Have you testified previously before this Commission?**

19 A. Yes, I testified as an expert witness on behalf of the Office of Consumer Advocate in
20 eight cases between 2011 and 2016. Most of those were rate cases involving several of
21 the state's water, natural gas, and electric utilities.

1 **Q. Do you have any recent experience that is particularly relevant to the issues in this**
2 **case?**

3 A. Yes, I do. From 2016 to the present, I have testified on rate design, cost allocation,
4 and/or tariff and policy issues in rate cases involving the following electric utilities:
5 Alaska Power, Ameren Illinois, Arizona Public Service, Central Maine Power,
6 Commonwealth Edison (Illinois), Connecticut Light & Power, Liberty Utilities - Granite
7 State Electric (New Hampshire), Massachusetts Electric and Nantucket Electric,
8 Minnesota Power, NSTAR Electric and Western Massachusetts Electric, United
9 Illuminating (Connecticut), Unitil Electric (New Hampshire), and UNS Electric
10 (Arizona). I would note that these cases include recent rate cases for Eversource
11 affiliates in Connecticut (Connecticut Light & Power where I testified on behalf of the
12 Office of Consumer Counsel) and Massachusetts (NSTAR Electric and Western
13 Massachusetts Electric where I testified on behalf of the Office of Attorney General).

14 **AARP's Interest in this Case**

15 **Q. Why is AARP interested in this case?**

16 A. Eversource provides electricity distribution service to almost 450,000 New Hampshire
17 households. According to the U.S. Census, in 2017 there were about 1,331,000 people
18 living in 627,000 housing units in the entire state.¹ So Eversource provides electric
19 service to about two-thirds of all households in New Hampshire. AARP has more than
20 225,000 members in New Hampshire, or about one out of every six people living in the
21 state. It is likely, therefore, that at least 75,000 of the Company's residential customers

¹ U.S. Census Bureau, American Community Survey 2013-2017, Table DP05,
<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

1 include at least one AARP member. I am also advised by AARP's New Hampshire state
2 office that several members of the state AARP Executive Council (its volunteer
3 governing body) are Eversource customers.

4 **Q. What are the qualifications to be a member of AARP?**

5 A. To the best of my knowledge, the only requirements are to be age 50 or older and pay
6 membership dues.

7 **Q. Are the interests of older Americans different from the interests of utility consumers**
8 **in general?**

9 A. Yes. As people age, they tend to use less electricity than they did when they were
10 younger. This can be due to several factors, including having fewer people living in the
11 household (as children leave to establish their own households or families), moving to
12 smaller housing units, and cutting back on energy consumption due to limited or fixed
13 incomes once they retire. According to the U.S. Department of Energy's Residential
14 Energy Consumption Survey (RECS), in 2015 the average New England household used
15 about 7,500 kWh per year. Households headed by a person in their 60s, however, used
16 an average of only about 6,780 kWh per year, while those in their 80s used less than
17 6,000 kWh per year. I provide a summary of my analysis of RECS data for New England
18 in Attachment SJR-2.

19 **Q. Does older Americans' lower energy consumption have any implications for utility**
20 **ratemaking?**

1 A. Yes. A sound utility rate design should provide all customers with an opportunity to
2 reduce their bills by reducing their energy consumption. If a rate structure includes high
3 fixed charges (that is, charges that do not vary with energy consumption), then customers
4 lose the opportunity to benefit from lowering their consumption. This is particularly
5 important for households headed by retirees living on fixed (and often lower) incomes.

6 In recent years, utility fixed charges have garnered increasing attention
7 throughout the United States. High fixed charges can act as a disincentive to the
8 installation of onsite generation and they can impose an onerous burden on lower-income
9 customers. I have been involved in several rate cases over the past few years where
10 utilities have been required to set their fixed charges so that they collect no more than the
11 costs associated with metering, the service drop to the home, billing, and call center
12 support. For example, when that requirement was implemented in Connecticut,
13 Eversource's affiliate in Connecticut reduced its residential customer charge from more
14 than \$19 per month to less than \$10 per month.

15 **Overview and Summary**

16 **Q. Please provide an overview of your analyses, conclusions, and the focus of your**
17 **testimony.**

18 A. Eversource has asked to increase its distribution rates by \$69.9 million -- a 19.9%
19 increase over its existing permanent rates. The Company has proposed that the largest
20 increase -- 23.9% -- should be borne by the Residential class of customers. All other

1 classes of customers would receive increases that are less than the overall percentage
2 increase, with the Outdoor Lighting class receiving a 26.8% rate reduction.

3 The Company's filing also includes proposals for new automatic rate adjustments,
4 changes in various miscellaneous charges, and changes in the rules and terms of service
5 that are part of its tariff. My testimony addresses six issues that I believe have a
6 significant effect on consumers in general and AARP members in particular. Briefly, the
7 issues I will discuss are summarized as follows:

- 8 • **Proposed Distribution Recovery Adjustment Mechanism (DRAM).**
9 The Company is proposing an automatic rate adjustment mechanism that
10 would be used for a variety of adjustments and could be expanded even
11 further in the future. I oppose the proposed DRAM both because of its
12 scope and because it would violate the matching principle (that revenues,
13 expenses, capital investments, and capital costs all should be synchronized
14 to the same point in time). The purpose of the matching principle is to
15 establish a relationship among all elements of the Company's operations
16 so that the rates will reasonably reflect that relationship. That relationship
17 would be broken by the selective adjustments proposed to be included in
18 the DRAM.
- 19 • **Revenue decoupling.** Eversource has a revenue decoupling mechanism
20 in place that is subject to being reviewed in this case. I recommend that
21 the Commission reject the Company's proposal to continue its revenue
22 decoupling experiment. Decoupling is not consistent with traditional
23 regulatory principles, elevates the utility's interest above the interests of
24 consumers, erodes the economic foundation underlying ratesetting, and is
25 not necessary to ensure the provision of safe and reliable service at
26 reasonable rates.
- 27 • **Allocation of any increase among customer classes.** Eversource has
28 recommended a decrease of more than \$2 million in Outdoor Lighting
29 rates and an above-average increase in Residential rates. Utility
30 ratemaking should have a long time horizon and rates should not bounce
31 around (going up one year then down the next). Even if one accepts the
32 results of the Company's cost-of-service studies, it is not reasonable to
33 implement a large rate reduction for one class while imposing greater-
34 than-average increases for other customer classes. Given the apparent

1 magnitude of the amount by which revenues exceed costs for the Outdoor
2 Lighting class, I recommend freezing Outdoor Lighting rates at their
3 present level. The difference should be used to reduce the increase for the
4 Residential class, which is the only class receiving an above-average
5 increase.

- 6 • **Residential customer charge.** Eversource’s residential customer charge
7 is currently \$12.69 per month. The Company proposes to increase the
8 charge to \$13.89 per month. Such an increase is not needed to recover the
9 basic costs associated with customer service (such as billing, metering,
10 and call center activities). By way of comparison, Eversource’s electric
11 customer charges in Massachusetts and Connecticut are \$7.00 and \$9.44,
12 respectively. As I explain below, high customer charges impose a
13 significant burden on low-use customers, particularly those with low or
14 fixed incomes, many of whom are elderly. I recommend, therefore, that
15 any increase in Residential rates should be collected solely through
16 increases in volumetric (per kilowatt-hour (kWh)) charges.

- 17 • **Optional Residential Time of Day Rate (Rate R-OTOD).** The
18 Company has an optional time-of-use rate that, in theory, could provide
19 some residential customers with an opportunity to reduce their bills for
20 electricity distribution service. Unfortunately, the rate is not designed to
21 be attractive to most residential customers. Incredibly, out of the
22 Company’s more than 400,000 residential customers, only 39 customers
23 have signed up for the rate -- and most of those customers are worse off
24 than they would be under the standard Residential rate (Rate R). I
25 recommend, therefore, that the rate should be eliminated. The Company
26 should be encouraged to work with other interested stakeholders and
27 develop an optional time-of-use rate that has the potential to save
28 customers money, and that is consistent with any potential savings in
29 distribution costs the Company may incur if customers move their energy
30 demands to off-peak periods.

- 31 • **Proposed anti-fraud measure.** The Company has proposed a new tariff
32 rule (Rule 9) that would give residential and small business customers the
33 option to ask the Company to “block Electronic Enrollments from
34 Suppliers.” I support this proposal as a common-sense measure to reduce
35 the fraudulent practice known as “slamming” -- transferring a customer’s
36 supplier without the customer’s knowledge and consent.

1 **Proposed Distribution Recovery Adjustment Mechanism (DRAM)**

2 ***Summary of Eversource's Proposal***

3 **Q. What is your understanding of the Company's proposed DRAM?**

4 A. The actual DRAM tariff proposed by Eversource is very broad and general. Using the
5 marked-up tariffs (Exh. EAD-2 (Perm)), the proposed DRAM is on Original Page 22
6 (Bates 001953). It states only that "the cost incurred by the Company for certain
7 distribution related services not being recovered through the Company's base distribution
8 rates" will be reconciled annually, or more often if there is a "significant over-recovery or
9 under-recovery." The proposed tariff does not contain any information about the types of
10 costs to be included in the DRAM and does not define "significant." The tariff also does
11 not explain how the rate will be calculated, how costs will be allocated among customer
12 classes, or any other provision that would inform customers about the costs that will be
13 reconciled.

14 **Q. What costs would be reconciled in the DRAM?**

15 A. According to the testimony of witnesses Chung and Dixon, the Company proposes to
16 include five types of costs in the initial DRAM, though other costs could be added in the
17 future. The initial costs proposed for inclusion are major storm response costs;
18 vegetation management; regulatory costs (such as Commission and Consumer Advocate
19 consultant costs and assessments); costs of a new arrearage-forgiveness program for low-
20 income customers; and costs under the general category known as the Grid
21 Transformation and Enablement Program (GTEP), including system resiliency and
22 rehabilitation and clean energy demonstration projects.

1 **Q. Do you know how the DRAM would be calculated?**

2 A. No. From the tariff, it appears that the resulting rate would be expressed in cents per
3 kWh for classes without demand charges and in cents per kilowatt (kW) for classes with
4 demand charges. See, for example, proposed Original Pages 41 and 50 (Bates 001978
5 and 001987) (the charges for Rates R and G, respectively). Eversource witness Davis
6 states only that DRAM costs would be allocated “based on the allocations of distribution
7 revenue ultimately approved by the Commission in this case.” Davis PFT, p. 22 (Bates
8 001819). Neither his testimony nor the tariff provides any formulas to be used in
9 determining the rates that would be paid by customers.

10 **Q. If approved, when would DRAM rates change?**

11 A. The date of the annual rate change is not stated in the tariff, but the Company’s witnesses
12 testify that the change would be effective on July 1 of each year. Davis PFT, p. 23 (Bates
13 001820); Chung and Dixon PFT, p. 102 (Bates 000163). Eversource anticipates making
14 the filing on May 1 (Chung and Dixon PFT, p. 102 (Bates 000163).

15 ***General Principles for Automatic Rate Adjustment Mechanisms***

16 **Q. As a general matter, how should the Commission determine whether it is reasonable
17 and necessary for a large utility to have automatic rate adjustment tariffs?**

18 A. In addition to any legal constraints that may exist (and that I expect counsel will address
19 in briefs), there are several factors that, in my opinion, the Commission should consider
20 as a matter of sound regulatory policy.

1 Initially, the ratemaking process involves a matching of revenues, expenses,
2 investment, return, customers, and consumption. Automatic rate adjustments for specific
3 expense or capital items break this relationship. The matching principle involves a
4 synchronous examination of the cost of service and sources of revenue, as well other
5 considerations such as the quality of service and efficiency of management. That
6 synchronization is the reason why we use a test year when a rate case is filed. One
7 treatise on utility regulation discusses this synchronization, or the matching principle, as
8 follows:

9 If the utility proposes a change, particularly a major change, in the test
10 year rate base, it is required also to consider the related changes in other
11 costs or in revenue. Additional investments may result in efficiencies that
12 reduce operating costs or quality improvements that will increase sales.
13 Unless the utility shows that it has taken such matters into account, its
14 revenue requirement is likely to be out of balance or overstated.²

15 For example, under normal circumstances, when a utility replaces an aging piece
16 of equipment, it might increase rate base and depreciation expense, but it also could
17 reduce maintenance expenses or produce other cost savings (such as reducing losses). To
18 keep costs synchronized might require adjustments to rate base, depreciation expense,
19 expenses, working capital, and taxes.

20 The use of automatic rate adjustment mechanisms for only certain aspects of the
21 Company's revenue requirement violates the matching principle and helps to destroy the
22 underlying relationship between utility rates and levels of cost and investment.

² Leonard Saul Goodman, *The Process of Ratemaking* (1998), vol. II, p. 735.

1 As a general rule, therefore, automatic rate adjustments should be used, if at all,
2 only for significant volatile expenses largely outside the utility's control. A good example
3 of this is a gas cost adjustment for a natural gas utility if the Commission finds that the
4 utility does not have any reasonable level of control over the level of expenditures. A
5 similar justification has been used for surcharges to recover state or local revenue taxes or
6 franchise taxes that are imposed on the utility.

7 **Q. Why is a utility's ability to control expenditures an important consideration in**
8 **determining whether an automatic adjustment tariff should be adopted?**

9 A. Automatic rate adjustments remove any incentive for the utility to become more efficient.
10 The ratemaking process is designed to foster management efficiency between rate cases.
11 That is, ratemaking provides an opportunity for a utility to achieve additional profit
12 between rate cases and then to subsequently share these efficiencies with ratepayers in
13 successive rate cases. This aspect of ratemaking provides utility management with a
14 strong incentive to achieve operational efficiencies and to be a zealous negotiator with its
15 suppliers. If the utility can wring additional efficiencies out of its operations or reduce
16 purchasing costs between cases, it can increase earnings for its investors. Likewise, this
17 aspect of ratemaking forces utilities to maintain existing efficiencies to try to ensure that
18 profits do not decline between rate cases. A focus on achieving and maintaining
19 efficiency is a pillar of informed ratemaking. Automatic rate adjustments, however,
20 remove any incentive the utility has to achieve or maintain efficiencies. Under
21 automatic rate adjustment mechanisms, any change in the unit cost of the product, and
22 any change in the amount of the product purchased, would flow directly to captive

1 customers. Failure to obtain available efficiencies, or failure to protect existing
2 efficiencies, can only lead to ever-increasing utility rates. As an example, if a utility were
3 allowed to automatically recover the cost of heating and cooling its office buildings, there
4 would be no incentive for the utility to try to find a lower-cost energy supplier, invest in
5 insulation or re-program the thermostats in its buildings – actions that most every other
6 business would take in response to changes in energy costs.

7 So, as a matter of public policy – that is, as a way to ensure that utilities retain the
8 incentive to improve efficiency between rate cases – automatic rate adjustments should
9 not be used for costs that the utility has the ability to control.

10 **Q. Are there other factors that should be considered in determining whether an**
11 **automatic rate adjustment is appropriate?**

12 A. Yes, in addition to the matching principle and a utility's ability to control the cost, the
13 Commission also should consider whether the cost is related to other expenditures that
14 are not subject to the adjustment mechanism (that is, what trade-offs exist and are they
15 reasonable).

16 **Q. Please discuss what you mean by trade-offs and why that is an important policy**
17 **consideration.**

18 A. Let me use a simple example. Let's assume a utility has an automatic rate adjustment to
19 recover its postage expenses for sending bills to customers. A utility could increase or
20 decrease its postage costs by changing the manner in which it provides other billing
21 options to customers (such as electronic or on-line billing). If a utility eliminated its

1 electronic billing operations, it would greatly increase its postage expenses while saving
2 itself substantial computer-related costs. With an automatic postage expense flow-
3 through, the resulting increase in postage expense would be recovered automatically from
4 customers, but the utility would get to retain all of the cost savings from reduced
5 computer expenses. Similarly, such an adjustment mechanism would provide an
6 incentive for the utility to avoid enhancing the efficiency of its billing efforts because it
7 would be unable to recover any additional savings for its shareholders between rate cases.

8 This example shows how an automatic rate adjustment can adversely skew the
9 normal evaluation of new technologies or processes that might improve efficiency and
10 save costs in the long term. The unreasonable trade-off occurs when one aspect of the
11 cost is recognized automatically, but another aspect is not.

12 As I explain below, Eversource's proposed DRAM fails in this regard. The
13 Company provides no information on how its proposed automatic increases balance the
14 costs and efficiencies discussed above. Simply put, the Company's proposal fails to
15 show how the utility will avoid making investment or other decisions that will result in
16 the type of unreasonable trade-offs inherent in its automatic rate adjustment proposal.

17 **Q. Earlier, you mentioned the volatility of the expense. Please describe what you mean.**

18 A. Volatility relates to how much the expense varies over time. If an expense is relatively
19 stable, there is no reason to have a special ratemaking process – and the costs it entails –
20 to recover relatively minor changes in costs. Volatility helps the Commission determine

1 whether it is worth the effort (and potential customer concern) to automatically adjust
2 rates between base rate cases.

3 ***Concerns with Proposed DRAM***

4 **Q. Do you have any concerns about the proposed DRAM?**

5 A. Yes, I have several concerns. First, from a procedural standpoint, I am concerned that the
6 proposed tariff does not provide customers with reasonable notice. The proposed tariff is
7 very general, contains no information about the costs to be reconciled, and does not
8 explain how costs will be allocated among customer classes or result in specific rates to
9 be charged. In my experience, the typical practice for an automatic rate adjustment tariff
10 is to specifically set forth the costs (or revenues) that will be reconciled and provide
11 specific formulas that will be used to calculate the rates. None of that information is
12 present in the proposed tariff.

13 Second, I am very concerned about the proposed two-month time period between
14 filing the DRAM adjustment and the effective date of the new rate. While two months
15 might be adequate for a routine reconciliation of expenses (such as regulatory expenses),
16 the proposed DRAM would include costs for significant capital investments and multi-
17 million-dollar reconstruction and rehabilitation programs. Those types of costs should
18 not be included in rates without a thorough examination of their reasonableness, need,
19 and relationship to the provision of safe and reliable service to current customers. A two-
20 month time period between filing and the effective date does not provide interested
21 parties, such as AARP, with any meaningful opportunity to review and comment on the
22 filing prior to the entry of a Commission order.

1 Third, and most importantly, the scope and substance of the proposed DRAM are
2 neither just nor reasonable. It is one thing to use an automatic adjustment mechanism to
3 ensure the recovery of well-defined costs outside the utility's control (like the annual
4 Commission assessment or the Consumer Advocate's consulting costs from a rate case).
5 Such adjustment mechanisms are common and ensure that the utility recovers the cost
6 imposed on it by outside parties, with no opportunity to either profit from or be harmed
7 by the cost-recovery mechanism. That is very different, however, from allowing the
8 utility to automatically collect the costs of significant maintenance or capital investment
9 activities, such as outage response, vegetation management, and GTEP projects.

10 **Q. Why are outage response, vegetation management, and GTEP projects**
11 **fundamentally different from externally imposed items like regulatory costs?**

12 A. Each of those categories is largely within the utility's control and is susceptible to having
13 significant trade-offs that would not be captured by the DRAM. For example, outage
14 response costs can be affected not just by weather (which, obviously, is outside the
15 utility's control), but also by the utility's spending on preventive maintenance, pole
16 inspections, facilities (such as SCADA systems or storm-hardened poles), and others.

17 Similarly, the proposed GTEP costs are for capital investments over which the
18 Company has significant control -- how aggressively to work with its suppliers and
19 contractors, what brand of equipment to purchase, the particular specifications of the
20 facilities to be purchased, costs paid for land and land rights, and many others. An
21 automatic adjustment mechanism would remove the Company's usual incentive to

1 control costs (an incentive based on investors bearing the carrying costs of investments
2 made between rate cases).

3 The proposed GTEP investments also have a substantial likelihood of having
4 trade-offs that are not captured in the DRAM. For example, replacing old poles with
5 storm-hardened poles should reduce spending on pole inspections and maintenance, and
6 may increase the efficiency of line crews (if they can reduce the time spent on inspecting
7 poles prior to climbing or working on the pole). The same would be true for essentially
8 every type of project proposed to be included in the GTEP -- there will be some aspect of
9 the project that could result in expense savings that would not be captured by the DRAM.

10 Incredibly, the Company is proposing that it include in the GTEP expenses
11 associated with those new investments. Messrs. Chung and Dixon state: "The Company
12 expects to incur incremental O&M associated with the resiliency-focused investments, as
13 well as recurring non-labor O&M for warranty and maintenance costs for the
14 Westmoreland Clean Innovation Project." Chung & Dixon PFT, p. 123 (Bates 000184).
15 Yet, no mention is made of crediting customers with expense savings associated with
16 reduced maintenance spending, increased efficiency, or other changes in Company
17 operations.

18 **Q. Would the proposed DRAM violate the matching principle that you discussed?**

19 A. Yes, absolutely. There are many costs that would not be captured in the proposed
20 DRAM. One of the largest, for example, is the cost of capital. In the Company's last
21 base rate case (DE 09-035), its filing showed a weighted cost of long-term debt of

1 5.389%. DE 09-035, Baumann/Eckenroth Schedule I (attached hereto as Attachment
2 SJR-3). In this case, the comparable figure is 4.30%. Attachment EHC/TMD-1 (Perm),
3 Schedule EHC/TMD-40 (Perm), p. 1. This represents a decline of more than 20% in the
4 cost of debt in the past decade, saving the Company millions of dollars per year in
5 interest expense. Those savings, however, would not be captured in the proposed
6 DRAM.

7 If the DRAM were approved, the Company would be allowed to automatically
8 increase rates for increased capital spending and higher expenses in certain categories,
9 but it would completely ignore other cost categories in which the Company could achieve
10 significant cost savings. This is the very definition of a violation of the matching
11 principle, and it would result in rates that are neither just nor reasonable.

12 **Q. What do you recommend?**

13 A. I recommend that the Commission reject the Company's proposed DRAM. It may be
14 reasonable for the Commission to continue automatic reconciliations of costs outside the
15 Company's control, such as regulatory assessments imposed by the Commission and
16 Consumer Advocate. Under no circumstances, however, should the Commission permit
17 Eversource to automatically increase rates for new capital investments or operations and
18 maintenance expenses over which the Company has significant control.

19 **Revenue Decoupling**

20 ***Summary of Company's Proposal***

21 **Q. What is your understanding of the Company's revenue decoupling mechanism?**

1 A. Mr. Davis discusses this issue on pages 23-24 of his direct testimony (Bates 001820-21).
2 My understanding is that the Company's System Benefits Charge (SBC) is calculated to
3 include a Lost Revenue Adjustment Mechanism (LRAM) to collect revenues allegedly
4 "lost" from energy efficiency measures and distributed generation. Eversource is
5 proposing to continue the existing LRAM.

6 **Q. Is it your understanding that Commission action is required to keep the LRAM in**
7 **place?**

8 A. In Order No. 25,932 (Docket No. DE 15-137, Aug. 2, 2016), the Commission ordered as
9 follows: "our approval of the LRAM does not limit our subsequent consideration and
10 approval at any time of a different lost revenue recovery mechanism, and that the Joint
11 Utilities (except NHEC) are required to seek approval of a decoupling or other lost-
12 revenue recovery mechanism as an alternate to the LRAM in their first distribution rate
13 cases after the first EERS triennium, if not before." Order No. 25,932, p. 60. This is
14 Eversource's first rate case since that order was issued, so it appears to me that
15 Commission review and approval of a so-called lost-revenue recovery proposal is
16 required.

17 ***Overview of Revenue Decoupling***

18 **Q. Is Eversource's LRAM a form of revenue decoupling?**

19 A. Yes, it is. Any ratemaking mechanism that attempts to hold the utility harmless from
20 changes in sales is a form of revenue decoupling.

21 **Q. Before you discuss the Company's proposal in detail, what is revenue decoupling?**

1 A. Revenue decoupling is an approach to utility ratemaking that seeks to sever the link
2 between a utility's sales and the revenue the utility receives. Decoupling was first
3 advanced by advocates who sought to garner utility support for demand-side management
4 and other conservation programs. Under the theory of decoupling, if a utility's revenues
5 were no longer dependent on the amount of service sold, utilities would no longer oppose
6 utility-sponsored demand-side management programs. As such, revenue decoupling
7 dramatically changes the nature of utility regulation.

8 **Q. How does decoupling change the nature of utility regulation?**

9 A. When I began working in the field of utility regulation more than 35 years ago, the
10 purpose of regulation was to set the prices that consumers pay for a service when the
11 market is not sufficiently competitive to set the price through normal market forces.

12 Economic regulation of utilities also serves another essential purpose: to minimize
13 the swings between surplus and scarcity that are characteristic of a competitive market
14 seeking theoretical (but rarely obtainable) equilibrium. When a monopoly provides an
15 essential service, there is no tolerance for - and potential serious harm to public health
16 and safety from - the scarcity that can occur in a competitive market. Traditional
17 economic regulation of utilities is designed to set the price at a level that is close to, but
18 somewhat higher than, a competitive market clearing price so that the risk of scarcity
19 (demand exceeding supply) is minimized. This is one of the reasons that utility rates
20 usually are based on average costs rather than marginal costs. By definition, a natural
21 monopoly has declining marginal costs, so average costs usually are higher than marginal

1 costs. Setting prices at this higher level tends to depress demand and minimize the
2 chance that demand will exceed supply, creating a shortage.

3 **Q. How does revenue decoupling differ from traditional regulation?**

4 A. Revenue decoupling deviates significantly from the traditional purpose of utility
5 regulation. While traditional regulation is focused on setting the price the consumer pays
6 for the service, revenue decoupling focuses on the revenues the utility receives. To
7 understand the differences between traditional regulation and decoupling, we can think
8 about the essential economics of a marketplace.

9 In a competitive market, when prices change, consumers respond to the change in
10 prices and other factors (weather, household income, the relative price of other goods and
11 services, and numerous other factors) and determine how much of the good or service
12 they will buy. The seller's revenues are based on the amount of the good or service sold
13 at each price. Prices to the consumer and revenues to the seller change constantly.

14 Under traditional utility regulation, regulators estimate a utility's costs (including
15 operating costs, taxes, depreciation, and capital costs) and the amount of service the
16 utility will sell. Based on those estimates, the regulator determines the price consumers
17 will pay. What actually happens after that is left to normal market forces. If the summer
18 is hot or if a customer changes its gas clothes dryer to an electric one, the consumer will
19 buy more electricity and the utility's revenues will be higher than anticipated. If the
20 reverse occurs (there is a cool summer or a consumer replaces its electric stove with a gas
21 one, or the utility provides poor service and the consumer looks for alternatives), then the

1 consumer will use less electricity and the utility's revenues will fall. Traditional
2 regulation sets one thing – the price the consumer will pay. Once the price is set, the
3 market takes over from there. There are no guarantees: consumers do not know what
4 their total bill will be (that will depend on how much electricity they use, which is the
5 product of numerous factors) and the utility does not know what its revenues will be (that
6 will depend on how much electricity it sells, which is also the product of numerous
7 factors).

8 Revenue decoupling represents a wholly different approach to regulation. Under
9 decoupling, rather than setting the price for service, the regulator determines the revenues
10 the utility will receive. Prices can change frequently (under some decoupling
11 mechanisms, they may change each month) and market forces no longer have an effect
12 on the utility. Consumers still will respond to the price (as well as all of the other factors
13 that affect consumption), but if they decrease consumption in response to those factors, it
14 may lead to price increases rather than a decline in the utility's revenues.

15 At its core, then, revenue decoupling is focused on the utility (ensuring a
16 particular level of revenues for the utility) rather than on the customer (setting the price
17 the customer pays).

18 ***Residential Sales Have Increased Since the Company's Last Rate Case***

19 **Q. Have the Company's sales to residential customers actually declined since its last**
20 **base rate case?**

1 A. No. Apparently ignored in all of the attempts to try to “make the Company whole” and
2 “compensate” it for the effects of conservation and distributed generation is a
3 fundamental fact: Eversource’s residential sales have increased since its last base rate
4 case. The Company’s last case was DE 09-035, using a 2008 test year. The Company’s
5 filing in that case shows that it sold 3,120,318 megawatt-hours (mWh) to residential
6 customers in 2008. Docket No. DE-09-035, Item 1604.01(a)(20) (attached hereto as
7 Attachment SJR-4). In this case, Attachment EAD-7 (Perm), pages 2-4, shows that the
8 Company sold 3,274,664 mWh to residential customers in 2018 -- an increase in sales of
9 almost 5%. At the Company’s current rates, this translates into additional transmission
10 and distribution revenues of approximately \$9.7 million annually.³

11 **Q. What does this mean?**

12 A. It means that “lost sales” are a fiction. The Company’s residential sales are almost \$10
13 million per year higher than they were 10 years ago when it last filed a full base rate case.

14 In addition, the Company’s customer charge revenues from residential customers
15 have increased significantly. When the 2009 case was settled, the Company’s Rate R
16 customer charge was \$11.60 per month for 416,400 customers, or total customer-charge
17 revenues of \$58.0 million.⁴ In this case, under present rates, the Company shows current
18 Rate R customer charge revenues of \$67.1 million. Attachment EAD-7 (Perm), p. 2.

³ Additional sales 2018 compared to 2008: $(3,274,664,000 \text{ kWh} - 3,120,318,000 \text{ kWh}) \times \0.06276 per kWh (Rate R distribution, transmission, stranded costs, system benefits, and energy service charges from Attachment EAD-7 (Perm), p. 2) = \$9,686,755.

⁴ $416,400 \text{ customers from DE 09-035 Attachment SRH-6 (attached hereto as Attachment SJR-5)} \times 12 \text{ months per customer} \times \$11.60 \text{ per month from DE 09-035, Settlement, Attachment 3 (attached hereto as Attachment SJR-6)}$.

1 Thus, residential customer charge revenues increased by more than \$9 million over the
2 past decade.

3 Simply stated, the Company does not need to be compensated for anything
4 because it did not lose anything. Between its customer charge revenues and its kWh-
5 based revenues, the Company is collecting at least \$18 million more from residential
6 customers today than it did 10 years ago. Nothing has been “lost.”

7 Finally, I would note that even if its sales or revenues had declined since the last
8 case (which did not occur), that still would not make it appropriate to “compensate” the
9 Company for “lost” sales. The proper response would be to have a rate case, synchronize
10 all aspects of the Company’s operations (including the significant decline in interest
11 expense), and set rates to collect the revenue requirement based on the test-year level of
12 sales.

13 **Q. What do you recommend?**

14 A. I recommend that the Commission reject the Company’s claim of “lost” sales. The
15 LRAM adjustments for sales allegedly lost because of demand management or
16 distributed generation should be removed from the calculation of the System Benefits
17 Charge.

18 **Allocation Among Customer Classes of Any Revenue Increase**

19 **Q. How does Eversource propose to allocate any revenue increase among the customer**
20 **classes?**

1 A. Table 1 on the next page, summarized from Eversource Attachment EAD-7 (Perm),
2 shows the Company's proposed allocation of distribution revenues. Briefly, the
3 Company proposes to reduce Outdoor Lighting revenues by more than \$2 million. All of
4 that revenue reduction, as well as any increase the class otherwise might pay, is imposed
5 on the Residential class (the only class receiving a greater-than-average increase in
6 revenues).

7

8

| Class | Present Revenues | Proposed Revenues | Percent Increase |
|---------------------|-------------------------|--------------------------|-------------------------|
| Residential | \$ 202,012,310 | \$ 250,340,293 | 23.9% |
| General Service | 84,312,407 | 98,182,431 | 16.5% |
| Large Comm. & Ind'l | 36,426,129 | 42,516,564 | 16.7% |
| High Voltage | 20,150,790 | 23,813,544 | 18.2% |
| Outdoor Lighting | 7,590,790 | 5,554,739 | (26.8%) |
| Total | \$ 350,492,426 | \$ 420,407,571 | 19.9% |

9

10 **Q. Do you agree with the Company's revenue allocation proposal?**

11 A. No. Utility ratemaking should have a long time horizon and rates should not bounce
12 around (going up one year then down the next). The typical approach to setting rates for a
13 class that may be providing revenues in excess of the cost of service is to either freeze the
14 rates or implement a lower-than-average increase (for example, an increase that is one-
15 half of the system-average percentage increase) until allocated costs increase. Given the
16 apparent magnitude of the amount by which revenues exceed costs for the Outdoor
17 Lighting class, I would recommend freezing the rates. The difference should be used to

1 reduce the increase for the classes receiving an above-average increase. In this case, the
2 only such class is the Residential class. This would reduce the Residential increase by
3 about \$2 million to approximately a 22.9% increase. My proposal would move each
4 class closer to the indicated cost of service under the Company's allocated cost-of-service
5 study, but it would do so in a manner more gradual than proposed by Eversource.

6 **Q. Please provide a table summarizing your proposed revenue allocation under the**
7 **Company's proposed revenue requirement.**

8 A. Table 2 shows my proposed revenue allocation under Eversource's proposed revenue
9 requirement.

| Table 2 | | | |
|--|-------------------------|--------------------------|-------------------------|
| AARP Proposed Allocation of Distribution Revenues | | | |
| Class | Present Revenues | Proposed Revenues | Percent Increase |
| Residential | \$ 202,012,310 | \$ 248,304,242 | 22.9% |
| General Service | 84,312,407 | 98,182,431 | 16.5% |
| Large Comm. & Ind'l | 36,426,129 | 42,516,564 | 16.7% |
| High Voltage | 20,150,790 | 23,813,544 | 18.2% |
| Outdoor Lighting | 7,590,790 | 7,590,790 | 0.0% |
| Total | \$ 350,492,426 | \$ 420,407,571 | 19.9% |

10 Residential Customer Charge

11 **Q. Is the Company proposing to increase the Residential customer charge?**

12 A. Yes. Eversource's residential customer charge is currently \$12.69 per month; it proposes
13 to increase the charge to \$13.89 per month.

14 **Q. Why is the Company proposing to increase the customer charge?**

1 A. Company witness Davis states that the customer charge is being “moved closer to the
2 marginal customer cost.” Davis PFT, p. 11 (Bates 001808).

3 **Q. Do you agree that the customer charge should be based on the marginal customer**
4 **cost?**

5 A. No, I do not. The Company’s revenue requirement is based on its embedded costs. Most
6 customers do not have brand new service lines and meters and it is not appropriate to set
7 rates as if they did. Indeed, if every customer was served by brand new facilities, the
8 Company’s maintenance costs would be a small fraction of their actual costs.
9 Eversource’s marginal cost study, however, assumes both that customers would be served
10 by brand new facilities and that the Company would continue to incur typical
11 maintenance costs (based on its actual installed facilities which, of course, are much
12 older). This is not a reasonable way to determine the rates customers should pay. In
13 addition, the calculation of marginal costs includes adders for overheads such as general
14 plant, officers’ salaries, and other administrative costs. Those costs are not directly
15 related to providing a customer with a service drop, meter, and bill.

16 Further, high fixed charges can act as a disincentive to the installation of onsite
17 generation and they can impose an onerous burden on lower-income customers,
18 especially those on fixed incomes. In my experience, it is becoming more common to
19 have residential fixed charges set to collect no more than the costs associated with
20 metering, the service drop to the home, billing, and call center support. For example,
21 when that requirement was implemented in Connecticut, Eversource’s affiliate in

1 Connecticut reduced its residential customer charge from more than \$19 per month to
2 less than \$10 per month.

3 **Q. Can you estimate the average embedded cost to a residential customer of providing**
4 **a meter, service drop, and bill?**

5 A. Yes. On Attachment SJR-7, I estimate these costs for the Residential class, using data
6 from the Company's allocated embedded cost-of-service study (Attachment ACOSS-2
7 (Perm)). My analysis results in an estimated customer-related cost of \$8.69 per month
8 for each residential customer.

9 **Q. Is it reasonable to conclude that the Company's residential customer charge should**
10 **be only \$8.69 when its current charge is almost 50% higher at \$12.69 per month?**

11 A. Yes, it is. By way of comparison, Eversource's electric customer charge for residential
12 customers in Massachusetts is \$7.00 per month. Its residential customer charge in
13 Connecticut is \$9.44 per month. Thus, it appears reasonable to me that its customer
14 charge in New Hampshire should fall right in the middle of that range.

15 **Q. What do you recommend?**

16 A. The existing charge of \$12.69 exceeds the cost of providing a customer with metering,
17 billing, service drop, and call center support. Ideally, the customer charge should be
18 lowered to no more than \$8.69 per month. I recognize, however, that such a significant
19 decrease in the customer charge could impose significant bill increases on larger-use
20 residential customers. In the interests of gradualism, therefore, I recommend that there
21 should be no increase in the Residential customer charge in this case.

Residential Optional Time-of-Day Rate

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Q. Do you have concerns with any other aspect of Eversource’s proposed Residential rates?

A. Yes. The Company has an optional time-of-day rate (Rate R-OTOD) that, in theory, could provide some residential customers with an opportunity to reduce their bills for electricity distribution service. Unfortunately, the rate is not designed to be attractive to most residential customers. In fact, to have any reasonable chance at even breaking even (let alone benefitting from the rate), I estimate that under present rates a customer would need to use at least three or four times as much electricity as the typical customer and use at least 75% of its electricity between the hours of 8 pm and 7 am. Specifically, I show on Attachment SJR-8 that a residential customer would need to use more than 2,400 kWh per month, and use 75% of that energy in the off-peak period, just to pay the same amount under Rate R-OTOD as it would pay under Rate R. If the customer uses less electricity or uses less than 75% of its electricity off-peak, then it becomes even harder to achieve any benefit from the time-of-day rate. In other words, it is highly unlikely that a residential customer could benefit from the rate.

Q. Have you determined whether customers are, in fact, benefiting from the rate?

A. According to the Company’s filing (Attachment EAD-7 (Perm), p. 4), Rate R-OTOD has attracted only 39 customers (466 bills ÷ 12 monthly bills per customer). Collectively, those customers use 153,613 kWh on-peak and 307,097 kWh off-peak. That is, they use approximately 33% of their kWh during the on-peak period.

1 Using the data on that page, I calculate that those customers are paying almost
2 \$10,000 per year in excess of what they would pay under Rate R, as I show on
3 Attachment SJR-9. In other words, on average each of the 39 customers is paying \$20
4 per month more than it would pay under the standard residential rate. In short, the rate is
5 poorly designed; it is not attractive to most residential customers; and the few customers
6 who signed up for the rate (fewer than 1/100 of 1% of residential customers are on the
7 rate) are worse off than they would be if they stayed on the standard rate.

8 **Q. If a customer uses one-third of its electricity during the on-peak period, is it**
9 **mathematically possible for the customer to benefit from Rate R-OTOD as**
10 **currently structured?**

11 A. No. A customer would need to use less than 31% of its electricity on-peak in order to
12 have any opportunity to save under Rate R-OTOD. That figure represents the ratio of the
13 Rate R rate per kWh to the Rate R-OTOD rate per kWh. If a customer uses more than
14 31% of its electricity on-peak, the charge for just the on-peak electricity would exceed
15 the total for all electricity used under Rate R. Thus, unless a customer can shift at least
16 70% of its electricity usage to between the hours of 8 pm and 7 am it is impossible for the
17 customer to be better off under Rate R-OTOD. I would note, however, that at the 70%
18 level, the customer would need to use more than 47,000 kWh per month in order to break
19 even compared to Rate R.

20 **Q. Do the Company's proposed rates for Rate R-OTOD change your conclusions?**

21 A. No. I entered the Company's proposed rates into the spreadsheet model I used to produce
22 Attachments SJR-8 and SJR-9 and the results are essentially the same. It would remain

1 impossible for a customer using more than 30% of its electricity on-peak to benefit from
2 Rate R-OTOD. The combined detriment to the 39 customers currently on the rate would
3 increase somewhat compared to the detriment under present rate (the harm would be
4 slightly more than \$10,000 per year, compared to just under \$10,000 at present rates).

5 **Q. What do you recommend?**

6 A. I recommend that Rate R-OTOD should be eliminated and that all customers on the rate
7 should be transferred to Rate R. The rate is not consistent with the public interest and is
8 neither just nor reasonable. It is essentially impossible for a customer to receive a lower
9 bill under Rate R-OTOD than the customer would pay under Rate R.

10 Finally, my testimony would be incomplete on this point if I did not mention that
11 I generally support the use of well-designed optional time-of-use rates, as long as the rate
12 reflects cost savings to the utility. The Company should be encouraged to work with
13 other interested stakeholders and develop an optional time-of-use rate that has the
14 potential to save customers money, and that is cost-based (that is, that the Company can
15 document any potential savings in distribution costs associated with customers moving
16 their energy demands to off-peak periods).

17 **Proposed Block on Electronic Enrollments**

18 **Q. Is the Company proposing any other changes to its tariff's terms and conditions?**

19 A. Yes, among the miscellaneous changes proposed by Eversource is a new Rule 9. The
20 rule would give residential and small business customers the option to ask the Company

1 to “block Electronic Enrollments from Suppliers.” The block can be removed by the
2 customer contacting the customer service center.

3 **Q. What is an Electronic Enrollment under the Company’s tariff?**

4 A. The tariff defines an “Electronic Enrollment” as “a request submitted electronically to the
5 Company by a Supplier for the initiation of Supplier Service to a Customer.” In other
6 words, the proposed rule would give each customer the option of blocking changes in the
7 customer’s electric generation supplier unless the customer either submits written
8 acknowledgment of the change or removes the block.

9 **Q. Do you support the Company’s proposed Rule 9?**

10 A. Yes, I do. This provision is a reasonable anti-fraud measure that can keep a customer’s
11 supply service from being transferred without the customer’s knowledge and consent. In
12 the utility industry, this is often referred to as “slamming” (changing a customer’s
13 supplier without the customer’s knowledge or consent). I prefer to use the term “fraud”
14 because it is more commonly understood by customers, and it is a very accurate
15 description of the practice -- a salesperson for a supplier (or agent) fraudulently says a
16 customer consented to buy something the customer did not agree to buy. The proposed
17 electronic block would help to prevent this type of fraud, and I urge the Commission to
18 adopt it.

19 **Conclusion**

20 **Q. Please summarize your recommendations to the Commission.**

21 A. In summary, I recommend that the Commission take the following actions in this case:

- 1 • Reject Eversource’s proposed DRAM;
- 2 • Terminate the experimental Lost Revenue Adjustment Mechanism that has
3 been part of Eversource’s SBC for the past three years;
- 4 • Eliminate the proposed rate reduction for the Outdoor Lighting class and
5 use those revenues to reduce the above-average increase to the Residential
6 class;
- 7 • Reject Eversource’s proposed increase in the Residential customer charge;
- 8 • Eliminate the Optional Residential Time of Day rate (Rate R-OTOD) and
9 move those customers to Rate R; and
- 10 • Approve the Company’s proposed Rule 9 that would give residential and
11 small business customers the option to block electronic enrollments from
12 energy suppliers.

13 **Q. Does this conclude your direct testimony?**

14 **A.** Yes, it does.

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Current Position

Public Utility Attorney and Consultant. 1994 to present. I provide legal, consulting, and expert witness services to various organizations interested in the regulation of public utilities.

Previous Positions

Lecturer in Computer Science, Susquehanna University, Selinsgrove, PA. 1993 to 2000.

Senior Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1990 to 1994.

I supervised the administrative and technical staff and shared with one other senior attorney the supervision of a legal staff of 14 attorneys.

Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1983 to 1990.

Associate, Laws and Staruch, Harrisburg, PA. 1981 to 1983.

Law Clerk, U.S. Environmental Protection Agency, Washington, DC. 1980 to 1981.

Research Assistant, Rockville Consulting Group, Washington, DC. 1979.

Current Professional Activities

Member, American Bar Association, Infrastructure and Regulated Industries Section.

Member, American Water Works Association.

Admitted to practice law before the Supreme Court of Pennsylvania, the New York State Court of Appeals, the United States District Court for the Middle District of Pennsylvania, the United States Court of Appeals for the Third Circuit, and the Supreme Court of the United States.

Served as peer reviewer for *Electricity Journal*, *Journal American Water Works Association*, *Journal of Benefit-Cost Analysis*, and *Utilities Policy*.

Previous Professional Activities

Member, American Water Works Association, Rates and Charges Subcommittee, 1998-2001.

Member, Federal Advisory Committee on Disinfectants and Disinfection By-Products in Drinking Water, U.S. Environmental Protection Agency, Washington, DC. 1992 to 1994.

Chair, Water Committee, National Association of State Utility Consumer Advocates, Washington, DC. 1990 to 1994; member of committee from 1988 to 1990.

Member, Board of Directors, Pennsylvania Energy Development Authority, Harrisburg, PA. 1990 to 1994.

Member, Small Water Systems Advisory Committee, Pennsylvania Department of Environmental Resources, Harrisburg, PA. 1990 to 1992.

Member, Ad Hoc Committee on Emissions Control and Acid Rain Compliance, National Association of State Utility Consumer Advocates, 1991.

Member, Nitrogen Oxides Subcommittee of the Acid Rain Advisory Committee, U.S. Environmental Protection Agency, Washington DC. 1991.

Education

J.D. with Honors, George Washington University, Washington, DC. 1981.

B.A. with Distinction in Political Science, Pennsylvania State University, University Park, PA. 1978.

Publications and Presentations (* denotes peer-reviewed publications)

1. "Quality of Service Issues," a speech to the Pennsylvania Public Utility Commission Consumer Conference, State College, PA. 1988.
2. K.L. Pape and S.J. Rubin, "Current Developments in Water Utility Law," in *Pennsylvania Public Utility Law* (Pennsylvania Bar Institute). 1990.
3. Presentation on Water Utility Holding Companies to the Annual Meeting of the National Association of State Utility Consumer Advocates, Orlando, FL. 1990.
4. "How the OCA Approaches Quality of Service Issues," a speech to the Pennsylvania Chapter of the National Association of Water Companies. 1991.
5. Presentation on the Safe Drinking Water Act to the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Seattle, WA. 1991.
6. "A Consumer Advocate's View of Federal Pre-emption in Electric Utility Cases," a speech to the Pennsylvania Public Utility Commission Electricity Conference. 1991.
7. Workshop on Safe Drinking Water Act Compliance Issues at the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Washington, DC. 1992.
8. Formal Discussant, Regional Acid Rain Workshop, U.S. Environmental Protection Agency and National Regulatory Research Institute, Charlotte, NC. 1992.
9. S.J. Rubin and S.P. O'Neal, "A Quantitative Assessment of the Viability of Small Water Systems in Pennsylvania," *Proceedings of the Eighth NARUC Biennial Regulatory Information Conference*, National Regulatory Research Institute (Columbus, OH 1992), IV:79-97.
10. "The OCA's Concerns About Drinking Water," a speech to the Pennsylvania Public Utility Commission Water Conference. 1992.

11. Member, Technical Horizons Panel, Annual Meeting of the National Association of Water Companies, Hilton Head, SC. 1992.
12. M.D. Klein and S.J. Rubin, "Water and Sewer -- Update on Clean Streams, Safe Drinking Water, Waste Disposal and Pennvest," *Pennsylvania Public Utility Law Conference* (Pennsylvania Bar Institute). 1992.
13. Presentation on Small Water System Viability to the Technical Assistance Center for Small Water Companies, Pa. Department of Environmental Resources, Harrisburg, PA. 1993
14. "The Results Through a Public Service Commission Lens," speaker and participant in panel discussion at Symposium: "Impact of EPA's Allowance Auction," Washington, DC, sponsored by AER*X. 1993.
15. "The Hottest Legislative Issue of Today -- Reauthorization of the Safe Drinking Water Act," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, San Antonio, TX. 1993.
16. "Water Service in the Year 2000," a speech to the Conference: "Utilities and Public Policy III: The Challenges of Change," sponsored by the Pennsylvania Public Utility Commission and the Pennsylvania State University, University Park, PA. 1993.
17. "Government Regulation of the Drinking Water Supply: Is it Properly Focused?," speaker and participant in panel discussion at the National Consumers League's Forum on Drinking Water Safety and Quality, Washington, DC. 1993. Reprinted in *Rural Water*, Vol. 15 No. 1 (Spring 1994), pages 13-16.
18. "Telephone Penetration Rates for Renters in Pennsylvania," a study prepared for the Pennsylvania Office of Consumer Advocate. 1993.
19. "Zealous Advocacy, Ethical Limitations and Considerations," participant in panel discussion at "Continuing Legal Education in Ethics for Pennsylvania Lawyers," sponsored by the Office of General Counsel, Commonwealth of Pennsylvania, State College, PA. 1993.
20. "Serving the Customer," participant in panel discussion at the Annual Conference of the National Association of Water Companies, Williamsburg, VA. 1993.
21. "A Simple, Inexpensive, Quantitative Method to Assess the Viability of Small Water Systems," a speech to the Water Supply Symposium, New York Section of the American Water Works Association, Syracuse, NY. 1993.
22. * S.J. Rubin, "Are Water Rates Becoming Unaffordable?," *Journal American Water Works Association*, Vol. 86, No. 2 (February 1994), pages 79-86.
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24. "Are Water Rates Becoming Unaffordable?," a speech to the Legislative and Regulatory Conference, Association of Metropolitan Water Agencies, Washington, DC. 1994.

25. "Relationships: Drinking Water, Health, Risk and Affordability," speaker and participant in panel discussion at the Annual Meeting of the Southeastern Association of Regulatory Commissioners, Charleston, SC. 1994.
26. "Small System Viability: Assessment Methods and Implementation Issues," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, New York, NY. 1994.
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33. S.J. Rubin, "Water Rates: An Affordable Housing Issue?," *Home Energy*, Vol. 12 No. 4 (July/August 1995), page 37.
34. Speaker and participant in the Water Policy Forum, sponsored by the National Association of Water Companies, Naples, FL. 1995.
35. Participant in panel discussion on "The Efficient and Effective Maintenance and Delivery of Potable Water at Affordable Rates to the People of New Jersey," at The New Advocacy: Protecting Consumers in the Emerging Era of Utility Competition, a conference sponsored by the New Jersey Division of the Ratepayer Advocate, Newark, NJ. 1995.
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40. "Clean Water at Affordable Rates: A Ratepayers Conference," moderator at symposium sponsored by the New Jersey Division of Ratepayer Advocate, Trenton, NJ. 1996.
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6. *West Penn Power Co. v. State Tax Department of West Virginia*, Circuit Court of Kanawha County, West Virginia, Civil Action No. 89-C-3056. 1993. Concerning regulatory policy and the effects of a taxation statute on out-of-state utility ratepayers, on behalf of the Pa. Office of Consumer Advocate
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9. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Ky. Public Service Commission, Case No. 93-434. 1994. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Utility and Rate Intervention Division.
10. *The Petition on Behalf of Gordon's Corner Water Company for an Increase in Rates*, New Jersey Board of Public Utilities, Docket No. WR94020037. 1994. Concerning revenue requirements and rate design, on behalf of the New Jersey Division of Ratepayer Advocate.
11. *Re Consumers Maine Water Company Request for Approval of Contracts with Consumers Water Company and with Ohio Water Service Company*, Me. Public Utilities Commission, Docket No. 94-352. 1994. Concerning affiliated interest agreements, on behalf of the Maine Public Advocate.
12. *In the Matter of the Application of Potomac Electric Power Company for Approval of its Third Least-Cost Plan*, D.C. Public Service Commission, Formal Case No. 917, Phase II. 1995. Concerning Clean Air Act implementation and environmental externalities, on behalf of the District of Columbia Office of the People's Counsel.
13. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of the Dayton Power and Light Company and Related Matters*, Ohio Public Utilities Commission, Case No. 94-105-EL-EFC. 1995. Concerning Clean Air Act implementation (case settled before testimony was filed), on behalf of the Office of the Ohio Consumers' Counsel.
14. *Kennebec Water District Proposed Increase in Rates*, Maine Public Utilities Commission, Docket No. 95-091. 1995. Concerning the reasonableness of planning decisions and the relationship between a publicly owned water district and a very large industrial customer, on behalf of the Maine Public Advocate.
15. *Winter Harbor Water Company, Proposed Schedule Revisions to Introduce a Readiness-to-Serve Charge*, Maine Public Utilities Commission, Docket No. 95-271. 1995 and 1996. Concerning standards for, and the reasonableness of, imposing a readiness to serve charge and/or exit fee on the customers of a small investor-owned water utility, on behalf of the Maine Public Advocate.
16. *In the Matter of the 1995 Long-Term Electric Forecast Report of the Cincinnati Gas & Electric Company*, Public Utilities Commission of Ohio, Case No. 95-203-EL-FOR, and *In the Matter of the Two-Year Review of the Cincinnati Gas & Electric Company's Environmental Compliance Plan Pursuant to Section 4913.05, Revised Cost*, Case No. 95-747-EL-ECP. 1996. Concerning the reasonableness of the utility's long-range supply and demand-management plans, the reasonableness of its plan for complying with the Clean Air Act Amendments of 1990, and discussing methods to ensure the provision of utility service to low-income customers, on behalf of the Office of the Ohio Consumers' Counsel..
17. *In the Matter of Notice of the Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 95-554. 1996. Concerning rate design, cost of service, and sales forecast issues, on behalf of the Kentucky Office of Attorney General.

18. *In the Matter of the Application of Citizens Utilities Company for a Hearing to Determine the Fair Value of its Properties for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, and to Approve Rate Schedules Designed to Provide such Rate of Return*, Arizona Corporation Commission, Docket Nos. E-1032-95-417, *et al.* 1996. Concerning rate design, cost of service, and the price elasticity of water demand, on behalf of the Arizona Residential Utility Consumer Office.
19. *Cochrane v. Bangor Hydro-Electric Company*, Maine Public Utilities Commission, Docket No. 96-053. 1996. Concerning regulatory requirements for an electric utility to engage in unregulated business enterprises, on behalf of the Maine Public Advocate.
20. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-106-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
21. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-107-EL-EFC and 96-108-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
22. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-101-EL-EFC and 96-102-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
23. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company (Phase II)*, Kentucky Public Service Commission, Docket No. 93-434. 1997. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Public Service Litigation Branch.
24. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-103-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
25. *Bangor Hydro-Electric Company Petition for Temporary Rate Increase*, Maine Public Utilities Commission, Docket No. 97-201. 1997. Concerning the reasonableness of granting an electric utility's request for emergency rate relief, and related issues, on behalf of the Maine Public Advocate.
26. *Testimony concerning H.B. 1068 Relating to Restructuring of the Natural Gas Utility Industry*, Consumer Affairs Committee, Pennsylvania House of Representatives. 1997. Concerning the provisions of proposed legislation to restructure the natural gas utility industry in Pennsylvania, on behalf of the Pennsylvania AFL-CIO Gas Utility Caucus.
27. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 97-107-EL-EFC and 97-108-EL-EFC. 1997. Concerning the

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29. *Bangor Gas Company, L.L.C., Petition for Approval to Furnish Gas Service in the State of Maine*, Maine Public Utilities Commission, Docket No. 97-795. 1998. Concerning the standards and public policy concerns involved in issuing a certificate of public convenience and necessity for a new natural gas utility, and related ratemaking issues, on behalf of the Maine Public Advocate.
30. *In the Matter of the Investigation on Motion of the Commission into the Adequacy of the Public Utility Water Service Provided by Tidewater Utilities, Inc., in Areas in Southern New Castle County, Delaware*, Delaware Public Service Commission, Docket No. 309-97. 1998. Concerning the standards for the provision of efficient, sufficient, and adequate water service, and the application of those standards to a water utility, on behalf of the Delaware Division of the Public Advocate.
31. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 97-103-EL-EFC. 1998. Concerning fuel-related transactions with affiliated companies and the appropriate ratemaking treatment and regulatory safeguards involving such transactions, on behalf of the Ohio Consumers' Counsel.
32. *Olde Port Mariner Fleet, Inc. Complaint Regarding Casco Bay Island Transit District's Tour and Charter Service*, Maine Public Utilities Commission, Docket No. 98-161. 1998. Concerning the standards and requirements for allocating costs and separating operations between regulated and unregulated operations of a transportation utility, on behalf of the Maine Public Advocate and Olde Port Mariner Fleet, Inc.
33. *Central Maine Power Company Investigation of Stranded Costs, Transmission and Distribution Utility Revenue Requirements, and Rate Design*, Maine Public Utilities Commission, Docket No. 97-580. 1998. Concerning the treatment of existing rate discounts when designing rates for a transmission and distribution electric utility, on behalf of the Maine Public Advocate.
34. *Pa. Public Utility Commission v. Manufacturers Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00984275. 1998. Concerning rate design on behalf of the Manufacturers Water Industrial Users.
35. *In the Matter of Petition of Pennsgrove Water Supply Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98030147. 1998. Concerning the revenue requirements, level of affiliated charges, and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
36. *In the Matter of Petition of Seaview Water Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98040193. 1999. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.

37. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 98-101-EL-EFC and 98-102-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
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39. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 99-106-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
40. *County of Suffolk, et al. v. Long Island Lighting Company, et al.*, U.S. District Court for the Eastern District of New York, Case No. 87-CV-0646. 2000. Submitted two affidavits concerning the calculation and collection of court-ordered refunds to utility customers, on behalf of counsel for the plaintiffs.
41. *Northern Utilities, Inc., Petition for Waivers from Chapter 820*, Maine Public Utilities Commission, Docket No. 99-254. 2000. Concerning the standards and requirements for defining and separating a natural gas utility's core and non-core business functions, on behalf of the Maine Public Advocate.
42. *Notice of Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2000-120. 2000. Concerning the appropriate methods for allocating costs and designing rates, on behalf of the Kentucky Office of Attorney General.
43. *In the Matter of the Petition of Gordon's Corner Water Company for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR00050304. 2000. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
44. *Testimony concerning Arsenic in Drinking Water: An Update on the Science, Benefits, and Costs*, Committee on Science, United States House of Representatives. 2001. Concerning the effects on low-income households and small communities from a more stringent regulation of arsenic in drinking water.
45. *In the Matter of the Application of The Cincinnati Gas & Electric Company for an Increase in Gas Rates in its Service Territory*, Public Utilities Commission of Ohio, Case No. 01-1228-GA-AIR, et al. 2002. Concerning the need for and structure of a special rider and alternative form of regulation for an accelerated main replacement program, on behalf of the Ohio Consumers' Counsel.
46. *Pennsylvania State Treasurer's Hearing on Enron and Corporate Governance Issues*. 2002. Concerning Enron's role in Pennsylvania's electricity market and related issues, on behalf of the Pennsylvania AFL-CIO.
47. *An Investigation into the Feasibility and Advisability of Kentucky-American Water Company's Proposed Solution to its Water Supply Deficit*, Kentucky Public Service Commission, Case No. 2001-00117. 2002.

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48. *Joint Application of Pennsylvania-American Water Company and Thames Water Aqua Holdings GmbH*, Pennsylvania Public Utility Commission, Docket Nos. A-212285F0096 and A-230073F0004. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
49. *Application for Approval of the Transfer of Control of Kentucky-American Water Company to RWE AG and Thames Water Aqua Holdings GmbH*, Kentucky Public Service Commission, Case No. 2002-00018. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Kentucky Office of Attorney General.
50. *Joint Petition for the Consent and Approval of the Acquisition of the Outstanding Common Stock of American Water Works Company, Inc., the Parent Company and Controlling Shareholder of West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 01-1691-W-PC. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Consumer Advocate Division of the West Virginia Public Service Commission.
51. *Joint Petition of New Jersey-American Water Company, Inc. and Thames Water Aqua Holdings GmbH for Approval of Change in Control of New Jersey-American Water Company, Inc.*, New Jersey Board of Public Utilities, Docket No. WM01120833. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
52. *Illinois-American Water Company, Proposed General Increase in Water Rates*, Illinois Commerce Commission, Docket No. 02-0690. 2003. Concerning rate design and cost of service issues, on behalf of the Illinois Office of the Attorney General.
53. *Pennsylvania Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00038304. 2003. Concerning rate design and cost of service issues, on behalf of the Pennsylvania Office of Consumer Advocate.
54. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 03-0353-W-42T. 2003. Concerning affordability, rate design, and cost of service issues, on behalf of the West Virginia Consumer Advocate Division.
55. *Petition of Seabrook Water Corp. for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR3010054. 2003. Concerning revenue requirements, rate design, prudence, and regulatory policy, on behalf of the New Jersey Division of Ratepayer Advocate.
56. *Chesapeake Ranch Water Co. v. Board of Commissioners of Calvert County*, U.S. District Court for Southern District of Maryland, Civil Action No. 8:03-cv-02527-AW. 2004. Submitted expert report concerning the expected level of rates under various options for serving new commercial development, on behalf of the plaintiff.
57. *Testimony concerning Lead in Drinking Water*, Committee on Government Reform, United States House of Representatives. 2004. Concerning the trade-offs faced by low-income households when drinking water costs increase, including an analysis of H.R. 4268.

58. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0373-W-42T. 2004. Concerning affordability and rate comparisons, on behalf of the West Virginia Consumer Advocate Division.
59. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0358-W-PC. 2004. Concerning costs, benefits, and risks associated with a wholesale water sales contract, on behalf of the West Virginia Consumer Advocate Division.
60. *Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2004-00103. 2004. Concerning rate design and tariff issues, on behalf of the Kentucky Office of Attorney General.
61. *New Landing Utility, Inc.*, Illinois Commerce Commission, Docket No. 04-0610. 2005. Concerning the adequacy of service provided by, and standards of performance for, a water and wastewater utility, on behalf of the Illinois Office of Attorney General.
62. *People of the State of Illinois v. New Landing Utility, Inc.*, Circuit Court of the 15th Judicial District, Ogle County, Illinois, No. 00-CH-97. 2005. Concerning the standards of performance for a water and wastewater utility, including whether a receiver should be appointed to manage the utility's operations, on behalf of the Illinois Office of Attorney General.
63. *Hope Gas, Inc. d/b/a Dominion Hope*, West Virginia Public Service Commission, Case No. 05-0304-G-42T. 2005. Concerning the utility's relationships with affiliated companies, including an appropriate level of revenues and expenses associated with services provided to and received from affiliates, on behalf of the West Virginia Consumer Advocate Division.
64. *Monongahela Power Co. and The Potomac Edison Co.*, West Virginia Public Service Commission, Case Nos. 05-0402-E-CN and 05-0750-E-PC. 2005. Concerning review of a plan to finance the construction of pollution control facilities and related issues, on behalf of the West Virginia Consumer Advocate Division.
65. *Joint Application of Duke Energy Corp., et al., for Approval of a Transfer and Acquisition of Control*, Case Kentucky Public Service Commission, No. 2005-00228. 2005. Concerning the risks and benefits associated with the proposed acquisition of an energy utility, on behalf of the Kentucky Office of the Attorney General.
66. *Commonwealth Edison Company proposed general revision of rates, restructuring and price unbundling of bundled service rates, and revision of other terms and conditions of service*, Illinois Commerce Commission, Docket No. 05-0597. 2005. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.
67. *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00051030. 2006. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
68. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, and Illinois Power Company d/b/a AmerenIP, proposed general increases in rates for delivery service*, Illinois Commerce Commission, Docket Nos. 06-0070, et al. 2006. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.

69. *Grens, et al., v. Illinois-American Water Co.*, Illinois Commerce Commission, Docket Nos. 5-0681, et al. 2006. Concerning utility billing, metering, meter reading, and customer service practices, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
70. *Commonwealth Edison Company Petition for Approval of Tariffs Implementing ComEd's Proposed Residential Rate Stabilization Program*, Illinois Commerce Commission, Docket No. 06-0411. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
71. *Illinois-American Water Company, Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges Pursuant to 83 Ill. Adm. Code 655*, Illinois Commerce Commission, Docket No. 06-0196. 2006. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
72. *Illinois-American Water Company, et al.*, Illinois Commerce Commission, Docket No. 06-0336. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Illinois Office of Attorney General.
73. *Joint Petition of Kentucky-American Water Company, et al.*, Kentucky Public Service Commission, Docket No. 2006-00197. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Kentucky Office of Attorney General.
74. *Aqua Illinois, Inc. Proposed Increase in Water Rates for the Kankakee Division*, Illinois Commerce Commission, Docket No. 06-0285. 2006. Concerning various revenue requirement, rate design, and tariff issues, on behalf of the County of Kankakee.
75. *Housing Authority for the City of Pottsville v. Schuylkill County Municipal Authority*, Court of Common Pleas of Schuylkill County, Pennsylvania, No. S-789-2000. 2006. Concerning the reasonableness and uniformity of rates charged by a municipal water authority, on behalf of the Pottsville Housing Authority.
76. *Application of Pennsylvania-American Water Company for Approval of a Change in Control*, Pennsylvania Public Utility Commission, Docket No. A-212285F0136. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
77. *Application of Artesian Water Company, Inc., for an Increase in Water Rates*, Delaware Public Service Commission, Docket No. 06-158. 2006. Concerning rate design and cost of service, on behalf of the Staff of the Delaware Public Service Commission.
78. *Central Illinois Light Company, Central Illinois Public Service Company, and Illinois Power Company: Petition Requesting Approval of Deferral and Securitization of Power Costs*, Illinois Commerce Commission, Docket No. 06-0448. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
79. *Petition of Pennsylvania-American Water Company for Approval to Implement a Tariff Supplement Revising the Distribution System Improvement Charge*, Pennsylvania Public Utility Commission, Docket No. P-00062241. 2007. Concerning the reasonableness of a water utility's proposal to increase the cap on

statutorily authorized distribution system surcharge, on behalf of the Pennsylvania Office of Consumer Advocate.

80. *Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2007-00143. 2007. Concerning rate design and cost of service, on behalf of the Kentucky Office of Attorney General.
81. *Application of Kentucky-American Water Company for a Certificate of Convenience and Necessity Authorizing the Construction of Kentucky River Station II, Associated Facilities and Transmission Main*, Kentucky Public Service Commission, Case No. 2007-00134. 2007. Concerning the life-cycle costs of a planned water supply source and the imposition of conditions on the construction of that project, on behalf of the Kentucky Office of Attorney General.
82. *Pa. Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00072229. 2007. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
83. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 07-0195. 2007. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
84. *In the Matter of the Application of Aqua Ohio, Inc. to Increase Its Rates for Water Service Provided in the Lake Erie Division*, Public Utilities Commission of Ohio, Case No.07-0564-WW-AIR. 2007. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
85. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00072711. 2008. Concerning rate design, on behalf of the Masthope Property Owners Council.
86. *Illinois-American Water Company Proposed increase in water and sewer rates*, Illinois Commerce Commission, Docket No. 07-0507. 2008. Concerning rate design and demand studies, on behalf of the Illinois Office of Attorney General.
87. *Central Illinois Light Company, d/b/a AmerenCILCO; Central Illinois Public Service Company, d/b/a AmerenCIPS; Illinois Power Company, d/b/a AmerenIP: Proposed general increase in rates for electric delivery service*, Illinois Commerce Commission Docket Nos. 07-0585, 07-0586, 07-0587. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
88. *Commonwealth Edison Company: Proposed general increase in electric rates*, Illinois Commerce Commission Docket No. 07-0566. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
89. *In the Matter of Application of Ohio American Water Co. to Increase Its Rates*, Public Utilities Commission of Ohio, Case No. 07-1112-WS-AIR. 2008. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.

90. *In the Matter of the Application of The East Ohio Gas Company d/b/a Dominion East Ohio for Authority to Increase Rates for its Gas Service*, Public Utilities Commission of Ohio, Case Nos. 07-829-GA-AIR, et al. 2008. Concerning the need for, and structure of, an accelerated infrastructure replacement program and rate surcharge, on behalf of the Office of the Ohio Consumers' Counsel.
91. *Pa. Public Utility Commission v. Pennsylvania American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2032689. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.
92. *Pa. Public Utility Commission v. York Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2023067. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.
93. *Northern Illinois Gas Company d/b/a Nicor Gas Company*, Illinois Commerce Commission, Docket No. 08-0363. 2008. Concerning rate design, cost of service, and automatic rate adjustments, on behalf of the Illinois Office of Attorney General.
94. *West Virginia American Water Company*, West Virginia Public Service Commission, Case No. 08-0900-W-42T. 2008. Concerning affiliated interest charges and relationships, on behalf of the Consumer Advocate Division of the Public Service Commission of West Virginia.
95. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 08-0218. 2008. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
96. *In the Matter of Application of Duke Energy Ohio, Inc. for an Increase in Electric Rates*, Public Utilities Commission of Ohio, Case No. 08-0709-EL-AIR. 2009. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
97. *The Peoples Gas Light and Coke Company and North Shore Gas Company Proposed General Increase in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 09-0166 and 09-0167. 2009. Concerning rate design and automatic rate adjustments on behalf of the Illinois Office of Attorney General, Citizens Utility Board, and City of Chicago.
98. *Illinois-American Water Company Proposed Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 09-0319. 2009. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
99. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2009-2132019. 2010. Concerning rate design, cost of service, and automatic adjustment tariffs, on behalf of the Pennsylvania Office of Consumer Advocate.
100. *Apple Canyon Utility Company and Lake Wildwood Utilities Corporation Proposed General Increases in Water Rates*, Illinois Commerce Commission, Docket Nos. 09-0548 and 09-0549. 2010. Concerning parent-company charges, quality of service, and other matters, on behalf of Apple Canyon Lake Property Owners' Association and Lake Wildwood Association, Inc.

101. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-02-13. 2010. Concerning rate design, proof of revenues, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
102. *Illinois-American Water Company Annual Reconciliation of Purchased Water and Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 09-0151. 2010. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
103. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket Nos. R-2010-2166212, et al. 2010. Concerning rate design and cost of service study for four wastewater utility districts, on behalf of the Pennsylvania Office of Consumer Advocate.
104. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, Illinois Power Company d/b/a AmerenIP Petition for accounting order*, Illinois Commerce Commission, Docket No. 10-0517. 2010. Concerning ratemaking procedures for a multi-district electric and natural gas utility, on behalf of the Illinois Office of Attorney General.
105. *Commonwealth Edison Company Petition for General Increase in Delivery Service Rates*, Illinois Commerce Commission Docket No. 10-0467. 2010. Concerning rate design and cost of service study, on behalf of the Illinois Office of Attorney General.
106. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2010-2179103. 2010. Concerning rate design, cost of service, and cost allocation, on behalf of the Pennsylvania Office of Consumer Advocate.
107. *Application of Yankee Gas Services Company for Amended Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-12-02. 2011. Concerning rate design and cost of service for a natural gas utility, on behalf of the Connecticut Office of Consumers' Counsel.
108. *California-American Water Company*, California Public Utilities Commission, Application 10-07-007. 2011. Concerning rate design and cost of service for multiple water-utility service areas, on behalf of The Utility Reform Network.
109. *Little Washington Wastewater Company, Inc., Masthope Wastewater Division*, Pennsylvania Public Utility Commission Docket No. R-2010-2207833. 2011. Concerning rate design and various revenue requirements issues, on behalf of the Masthope Property Owners Council.
110. *In the matter of Pittsfield Aqueduct Company, Inc.*, New Hampshire Public Utilities Commission Case No. DW 10-090. 2011. Concerning rate design and cost of service on behalf of the New Hampshire Office of the Consumer Advocate.
111. *In the matters of Pennichuck Water Works, Inc. Permanent Rate Case and Petition for Approval of Special Contract with Anheuser-Busch, Inc.*, New Hampshire Public Utilities Commission Case Nos. DW 10-091 and DW 11-014. 2011. Concerning rate design, cost of service, and contract interpretation on behalf of the New Hampshire Office of the Consumer Advocate.
112. *Artesian Water Co., Inc. v. Chester Water Authority*, U.S. District Court for the Eastern District of Pennsylvania Case No. 10-CV-07453-JP. 2011. Concerning cost of service, ratemaking methods, and

contract interpretation on behalf of Chester Water Authority.

113. *North Shore Gas Company and The Peoples Gas Light and Coke Company Proposed General Increases in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 11-0280 and 11-0281. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General, the Citizens Utility Board, and the City of Chicago.
114. *Ameren Illinois Company: Proposed general increase in electric delivery service rates and gas delivery service rates*, Illinois Commerce Commission, Docket Nos. 11-0279 and 11-0282. 2011. Concerning rate design and cost of service for natural gas and electric distribution service, on behalf of the Illinois Office of Attorney General and the Citizens Utility Board.
115. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2232243. 2011. Concerning rate design, cost of service, sales forecast, and automatic rate adjustments on behalf of the Pennsylvania Office of Consumer Advocate.
116. *Aqua Illinois, Inc. Proposed General Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 11-0436. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General.
117. *City of Nashua Acquisition of Pennichuck Corporation*, New Hampshire Public Utilities Commission, Docket No. DW 11-026. 2011. Concerning the proposed acquisition of an investor-owned utility holding company by a municipality, including appropriate ratemaking methodologies, on behalf of the New Hampshire Office of Consumer Advocate.
118. *An Application by Heritage Gas Limited for the Approval of a Schedule of Rates, Tolls and Charges*, Nova Scotia Utility and Review Board, Case NSUARB-NG-HG-R-11. 2011. Concerning rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
119. *An Application of Halifax Regional Water Commission for Approval of a Cost of Service and Rate Design Methodology*, Nova Scotia Utility and Review Board, Case NSUARB-W-HRWC-R-11. 2011. Concerning rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
120. *National Grid USA and Liberty Energy Utilities Corp.*, New Hampshire Public Utilities Commission, Docket No. DG 11-040. 2011. Concerning the costs and benefits of a proposed merger and related conditions, on behalf of the New Hampshire Office of Consumer Advocate.
121. *Great Northern Utilities, Inc., et al.*, Illinois Commerce Commission, Docket Nos. 11-0059, et al. 2012. Concerning options for mitigating rate impacts and consolidating small water and wastewater utilities for ratemaking purposes, on behalf of the Illinois Office of Attorney General.
122. *Pa. Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2267958. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Pennsylvania Office of Consumer Advocate.
123. *Golden State Water Company*, California Public Utilities Commission, Application 11-07-017. 2012. Concerning rate design and quality of service, on behalf of The Utility Reform Network.

124. *Golden Heart Utilities, Inc. and College Utilities Corporation*, Regulatory Commission of Alaska, Case Nos. U-11-77 and U-11-78. 2012. Concerning rate design and cost of service, on behalf of the Alaska Office of the Attorney General.
125. *Illinois-American Water Company*, Illinois Commerce Commission, Docket No. 11-0767. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Illinois Office of Attorney General.
126. *Application of Tidewater Utilities, Inc., for a General Rate Increase in Water Base Rates and Tariff Revisions*, Delaware Public Service Commission, Docket No. 11-397. 2012. Concerning rate design and cost of service study, on behalf of the Staff of the Delaware Public Service Commission.
127. *In the Matter of the Philadelphia Water Department's Proposed Increase in Rates for Water and Wastewater Utility Services*, Philadelphia Water Commissioner, FY 2013-2016. 2012. Concerning rate design and related issues for storm water service, on behalf of Citizens for Pennsylvania's Future.
128. *Corix Utilities (Illinois) LLC, Hydro Star LLC, and Utilities Inc. Joint Application for Approval of a Proposed Reorganization*, Illinois Commerce Commission, Docket No. 12-0279. 2012. Concerning merger-related synergy savings and appropriate ratemaking treatment of the same, on behalf of the Illinois Office of Attorney General.
129. *North Shore Gas Company and The Peoples Gas Light and Coke Company*, Illinois Commerce Commission, Docket Nos. 12-0511 and 12-0512. 2012. Concerning rate design, cost of service study, and automatic rate adjustment tariff on behalf of the Illinois Office of Attorney General.
130. *Pa. Public Utility Commission v. City of Lancaster Sewer Fund*, Pennsylvania Public Utility Commission, Docket No. R-2012-2310366. 2012. Concerning rate design, cost of service, and cost allocation, on behalf of the Pennsylvania Office of Consumer Advocate.
131. *Aquarion Water Company of New Hampshire*, New Hampshire Public Utilities Commission, Docket No. DW 12-085. 2013. Concerning tariff issues, including an automatic adjustment clause for infrastructure improvement, on behalf of the New Hampshire Office of Consumer Advocate.
132. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1682-EL-AIR, et al. 2013. Concerning rate design and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
133. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Natural Gas Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1685-GA-AIR, et al. 2013. Concerning cost-of-service study, rate design, and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
134. *In the Matter of the Application of The Dayton Power and Light Company to Establish a Standard Service Offer in the Form of an Electric Security Plan*, Public Utilities Commission of Ohio, Case No. 12-426-EL-SSO, et al. 2013. Concerning rate design, on behalf of the Office of the Ohio Consumers' Counsel.
135. *Application of the Halifax Regional Water Commission, for Approval of Amendments to its Schedule of Rates and Charges and Schedule of Rules and Regulations for the delivery of water, public and private* 56

fire protection, wastewater and stormwater services, Nova Scotia Utility and Review Board, Matter No. M05463. 2013. Concerning rate design, cost-of-service study, and miscellaneous tariff provisions, on behalf of the Consumer Advocate of Nova Scotia.

136. *California Water Service Co. General Rate Case Application*, California Public Utilities Commission, Docket No. A.12-07-007. 2013. Concerning rate design, phase-in plans, low-income programs, and other tariff issues, on behalf of The Utility Reform Network.
137. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-01-19. 2013. Concerning sales forecast, rate design, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
138. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-02-20. 2013. Concerning sales forecast and rate design on behalf of the Connecticut Office of Consumer Counsel.
139. *Ameren Illinois Company, Proposed General Increase in Natural Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 13-0192. 2013. Concerning rate design and revenue allocation, on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
140. *Commonwealth Edison Company, Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0387. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
141. *In the Matter of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*, District of Columbia Public Service Commission, Formal Case No. 1103. 2013. Concerning rate design, revenue allocation, and cost-of-service study issues, on behalf of the District of Columbia Office of Peoples' Counsel.
142. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2013-2355276. 2013. Concerning rate design, revenue allocation, and regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.
143. *In the Matter of the Revenue Requirement and Transmission Tariff Designated as TA364-8 filed by Chugach Electric Association, Inc.*, Regulatory Commission of Alaska, U-13-007. 2013. Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.
144. *Ameren Illinois Company: Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0476. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
145. *Pa. Public Utility Commission v. City of Bethlehem Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2013-2390244. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
146. *In the Matter of the Tariff Revision Designated as TA332-121 filed by the Municipality of Anchorage d/b/a Municipal Light and Power Department*, Regulatory Commission of Alaska, U-13-184. 2014.

Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.

147. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Gas*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397353. 2014. Concerning rate design and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
148. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Electric*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397237. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
149. *The Peoples Gas Light and Coke Company North Shore Gas Company Proposed General Increase in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 14-0224 and 14-0225. 2014. Concerning rate design on behalf of the Illinois Office of the Attorney General and the Environmental Law and Policy Center.
150. *Apple Valley Ranchos Water Company*, California Public Utilities Commission, Docket No. A.14-01-002. 2014. Concerning rate design and automatic rate adjustment mechanisms on behalf of the Town of Apple Valley.
151. *Application by Heritage Gas Limited for Approval to Amend its Franchise Area*, Nova Scotia Utility and Review Board, Matter No. M06271. 2014. Concerning criteria, terms, and conditions for expanding a utility's service area and using transported compressed natural gas to serve small retail customers, on behalf of the Nova Scotia Consumer Advocate.
152. *Notice of Intent of Entergy Mississippi, Inc. to Modernize Rates to Support Economic Development, Power Procurement, and Continued Investment*, Mississippi Public Service Commission Docket No. 2014-UN-132. 2014. Concerning rate design and tariff issues, on behalf of the Mississippi Public Utilities Staff.
153. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2014-2418872. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
154. *Pa. Public Utility Commission v. Borough of Hanover Municipal Water Works*, Pennsylvania Public Utility Commission, Docket No. R-2014-2428304. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
155. *Investigation of Commonwealth Edison Company's Cost of Service for Low-Use Customers in Each Residential Class*, Illinois Commerce Commission, Docket No. 14-0384. 2014. Concerning rate design on behalf of the Illinois Office of Attorney General.
156. *Application of the Halifax Regional Water Commission, for Approval of its Schedule of Rates and Charges and Schedule of Rules and Regulations for the Provision of Water, Public and Private Fire Protection, Wastewater and Stormwater Services*, Nova Scotia Utility and Review Board, Matter No. M06540. 2015. Concerning rate design, cost of service study, and tariff issues on behalf of the Nova Scotia Consumer Advocate.

157. *Testimony concerning organization and regulation of Philadelphia Gas Works*, Philadelphia City Council's Special Committee on Energy Opportunities. 2015.
158. *Testimony concerning proposed telecommunications legislation*, Maine Joint Standing Committee on Energy, Utilities, and Technology. 2015.
159. *Pa. Public Utility Commission v. United Water Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2015-2462723. 2015. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
160. *Ameren Illinois Company Proposed General Increase in Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 15-0142. 2015. Concerning rate design on behalf of the Illinois Office of Attorney General.
161. *Maine Natural Gas Company Request for Multi-Year Rate Plan*, Maine Public Utilities Commission, Docket No. 2015-00005. 2015. Concerning rate design and automatic rate adjustment tariffs on behalf of the Maine Office of the Public Advocate.
162. *Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Provide for a Standard Service Offer*, Public Utilities Commission of Ohio, Case No. 14-1297-EL-SSO. 2015. Concerning rate design and proposed rate discounts on behalf of the Office of the Ohio Consumers' Counsel.
163. *An Application of the Halifax Regional Water Commission, for approval of revisions to its Cost of Service Manual and Rate Design for Stormwater Service*, Nova Scotia Utility and Review Board, Matter No. M07147. 2016. Concerning stormwater rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
164. *In the Matter of An Application by Heritage Gas Limited for Enhancement to Its Existing Residential Retro-Fit Assistance Fund*, Nova Scotia Utility and Review Board, Matter No. M07146. 2016. Concerning costs and benefits associated with utility system expansion, on behalf of the Nova Scotia Consumer Advocate.
165. *In the Matter of the Application of UNS Electric, Inc. for the Establishment of Just and Reasonable Rates and Charges*, Arizona Corporation Commission, Docket No. E-04204A-15-0142. 2016. Concerning rate design and residential demand charges on behalf of Arizona Utility Ratepayer Alliance.
166. *In the Matter of Application of Water Service Corporation of Kentucky for a General Adjustment in Existing Rates*, Kentucky Public Service Commission, Case No. 2015-00382. 2016. Concerning rate design and service area consolidation on behalf of the Kentucky Office of the Attorney General.
167. *Massachusetts Electric Company and Nantucket Electric Company*, Massachusetts Department of Public Utilities, Docket No. DPU 15-155. 2016. Concerning rate design and cost-of-service studies on behalf of the Massachusetts Office of Attorney General.
168. *In the Matter of Abenaki Water Company*, New Hampshire Public Utilities Commission, Docket No. DW 15-199. 2016. Concerning rate design on behalf of the New Hampshire Office of the Consumer

Advocate.

169. *In the Matter of an Application by Heritage Gas Limited for Approval of its Customer Retention Program*, Nova Scotia Utility and Review Board Matter No. M07346. 2016. Concerning a regulatory response to competition and potential business failure on behalf of the Nova Scotia Consumer Advocate.
170. *Joint Application of Pennsylvania-American Water Company and the Sewer Authority of the City of Scranton*, Pennsylvania Public Utility Commission Docket No. A-2016-2537209. 2016. Concerning the lawfulness, costs and benefits, and ratemaking treatment of a proposed acquisition of a combined wastewater and storm water utility on behalf of the Pennsylvania Office of Consumer Advocate.
171. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority Docket No. 16-06-04. 2016. Concerning rate design, cost-of-service study, and other tariff issues on behalf of the Connecticut Office of Consumer Counsel.
172. *Ameren Illinois Company Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Illinois Commerce Commission Docket No. 16-0387. 2016. Concerning rate design and cost-of-service study on behalf of the Illinois Office of the Attorney General.
173. *Unitil Energy Systems, Inc.*, New Hampshire Public Utilities Commission Docket No. 16-384. 2016. Concerning rate design and cost-of-service study on behalf of the New Hampshire Office of Consumer Advocate.
174. *Liberty Utilities (Granite State Electric) Corp.*, New Hampshire Public Utilities Commission Docket No. 16-383. 2016. Concerning rate design and cost-of-service study on behalf of the New Hampshire Office of Consumer Advocate.
175. *Arizona Public Service Co.*, Arizona Corporation Commission Docket No. E-01345A-16-0123. 2017. Concerning rate design and cost-of-service study on behalf of the Arizona Utility Ratepayer Alliance.
176. *Commonwealth Edison Company, Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Illinois Commerce Commission Docket No. 17-0049. 2017. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
177. *NSTAR Electric Company and Western Massachusetts Electric Company*, Massachusetts Department of Public Utilities Docket No. D.P.U. 17-05. 2017. Concerning rate design and cost of service study issues, on behalf of the Massachusetts Office of Attorney General.
178. *In the Matter of the Tariff Revision Designated as TA857-2 Filed by Alaska Power Company*, Regulatory Commission of Alaska No. U-16-078. 2017. Concerning rate design and cost of service study issues on behalf of the Alaska Office of the Attorney General.
179. *In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Utility Service in Minnesota*, Minnesota Public Utilities Commission Docket No. E015/GR-16-664. 2017. Concerning rate design and cost of service study issues on behalf of AARP.

180. *Pennsylvania Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2017-2595853. 2017. Concerning rate design, cost of service, and policy issues, on behalf of the Pennsylvania Office of Consumer Advocate.
181. *Aqua Illinois, Inc. Proposed Rate Increases for Water and Sewer Services*, Illinois Commerce Commission, Docket No. 17-0259. 2017. Concerning rate design and single-tariff pricing, on behalf of the Illinois Office of Attorney General.
182. *Petition of Pennsylvania-American Water Company for Approval of Tariff Changes and Accounting and Rate Treatment Related to Replacement of Lead Customer-Owned Service Pipes*, Pennsylvania Public Utility Commission, Docket No. P-2017-2606100. 2017. Concerning public policy and ratemaking issues associated with the replacement of customer-owned lead service lines, on behalf of the Pennsylvania Office of Consumer Advocate.
183. *In the Matter of Application and Notice of Change in Natural Gas Rates of Montana-Dakota Utilities Co.*, North Dakota Public Service Commission, Case No. PU-17-295. 2017. Concerning rate design and cost of service study issues, on behalf of AARP.
184. *Aqua Illinois, Inc. Petition for the Issuance of a Certificate of Public Convenience and Necessity to Operate a Water and Wastewater System in the Village of Peotone*, Illinois Commerce Commission, Docket No. 17-0314. 2018. Concerning rate consolidation and rate design, on behalf of the Illinois Office of Attorney General.
185. *Application of the Connecticut Light and Power Company d/b/a Eversource Energy to Amend its Rate Schedules*, Connecticut Public Utilities Regulatory Authority, Docket No. 17-10-46. 2018. Concerning rate design issues, on behalf of the Connecticut Office of Consumer Counsel.
186. *Application by Heritage Gas for Approval of a Long-Term Natural Gas Transportation Contract and Cost Recovery Mechanism*, Nova Scotia Utility and Review Board, Matter M08473. 2018. Concerning evaluation of costs, benefits, and risks of a long-term natural gas pipeline contract, on behalf of the Consumer Advocate of Nova Scotia.
187. *Boston Gas Company and Colonial Gas Company*, Massachusetts Department of Public Utilities, D.P.U. 17-170. 2018. Concerning class revenue allocation and rate design, on behalf of the Massachusetts Office of Attorney General.
188. *In the Matter of the Application of Maryland-American Water Company for Authority to Adjust its Existing Schedule of Tariffs and Rates*, Maryland Public Service Commission, Case No. 9487. 2018. Concerning cost-of-service study, on behalf of the Staff of the Maryland Public Service Commission.
189. *Joint Application and Petition of South Carolina Electric & Gas Company and Dominion Energy, Inc. for review and approval of a proposed business combination between SCANA Corporation and Dominion Energy, Inc., as may be required, and for a prudency determination regarding the abandonment of the V.C. Summer Units 2 & 3 Project and associated merger benefits and cost recovery plans*, South Carolina Public Service Commission, Docket No. 2017-370-E. 2018. Concerning regulatory policy, prudency of decision-making, and cost sharing, on behalf of AARP.

190. *Application of Transource Pennsylvania, LLC for approval of the Siting and Construction of the 230 kV Transmission Line Associated with the Independence Energy Connection - East and West Projects in portions of York and Franklin Counties, Pennsylvania*, Pennsylvania Public Utility Commission, Docket Nos. A-2017-2640195, et al. 2018. Concerning regulatory policy and benefit-cost analysis for a proposed high-voltage electric transmission line, on behalf of the Pennsylvania Office of Consumer Advocate.
191. *Pa. Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Pennsylvania Public Utility Commission, Docket Nos. R-2018-3002645, et al. 2018. Concerning cost-of-service study and rate design for a water and wastewater utility, on behalf of the Pennsylvania Office of Consumer Advocate.
192. *West Virginia-American Water Company Rule 42T Tariff Filing to Increase Rates and Charges*, West Virginia Public Service Commission, Case No. 18-0573-W-42T, et al. 2018. Concerning revenue decoupling, on behalf of the Consumer Advocate Division.
193. *Philadelphia Gas Works and Philadelphia Facilities Management Corporation Petition for Approval and Recommendation for Approval of Certain Transactions and Contracts for the Purchase, Storage, Distribution and/or Transmission of Natural and Other Gas, and also Certain Transactions and Contracts Respecting Real Property Owned by the City of Philadelphia and Operated by the Philadelphia Gas Works*, Philadelphia Gas Commission. 2018. Concerning regulatory policy and cost-benefit analysis for a proposed public-private partnership, on behalf of the Philadelphia Public Advocate.
194. *Pa. Public Utility Commission v. Aqua Pennsylvania, Inc., and Aqua Pennsylvania Wastewater, Inc.*, Pennsylvania Public Utility Commission, Docket Nos. R-2018-3003558, et al. 2018. Concerning rate design, class revenue allocation, and automatic rate adjustment mechanism, on behalf of the Pennsylvania Office of Consumer Advocate.
195. *In the Matter of Commission Initiated Investigation into Rates and Revenue Requirements and Customer Service and Communication Issues Pertaining to Central Maine Power Company*, Maine Public Utilities Commission, Docket No. 2018-00194. 2019. Concerning cost-of-service studies and rate design, on behalf of the Maine Office of Public Advocate.
196. *Northern Illinois Gas Company d/b/a Nicor Gas Company: Proposed general increase in gas rates*, Illinois Commerce Commission, Docket No. 18-1775. 2019. Concerning rate design, cost-of-service study, class revenue allocation, and automatic rate adjustment mechanisms, on behalf of the Illinois Office of the Attorney General.
197. *Massachusetts Electric Co. and Nantucket Electric Co., d/b/a/ National Grid*, Massachusetts Department of Public Utilities, D.P.U. 18-150. 2019. Concerning rate design, cost-of-service study, class revenue allocation, and time-of-use rates, on behalf of the Massachusetts Office of Attorney General.
198. *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1*, Pennsylvania Public Utility Commission, Docket Nos. M-2018-2640802 and M-2018-2640803. 2019. Concerning billing, metering, rate design, and other compliance issues for a municipal water authority, on behalf of the Pennsylvania Office of Consumer Advocate.
199. *Commonwealth Edison Company Petition for approval of a Revision to Integrated Distribution Company Implementation Plan. Creation of Rate Residential Time of Use Pricing Pilot (“Rate RTOUPP”)*. Illinois Commerce Commission, Docket Nos. 18-1725/18-1824 (Cons.). Concerning time-of-use rates, on behalf

of the Illinois Office of Attorney General.

200. *Washington Utilities and Transportation Commission v. Northwest Natural Gas Co.*, Washington Utilities and Transportation Commission, Docket UG-181053. 2019. Concerning a proposed revenue decoupling automatic rate adjustment mechanism, on behalf of the Washington Office of Attorney General, Public Counsel Unit.
201. *In the Matter of the Application of Washington Gas Light Company for Authority to Increase Existing Rates and Charges and to Revise its Terms and Conditions for Gas Service*, Maryland Public Service Commission, Case No. 9605. 2019. Concerning cost-of-service study on behalf of the Staff of the Maryland Public Service Commission.

Average electricity consumption (kWh) by age of householder: New England, 2015

| Age Range | Average Electricity Consumption (kWh) | Number of Households |
|------------------|--|-----------------------------|
| Age 29 or under | 4,743 | 566,425 |
| Age 30-39 | 6,588 | 1,009,366 |
| Age 40-49 | 10,400 | 681,884 |
| Age 50-59 | 8,576 | 1,240,873 |
| Age 60-69 | 6,783 | 1,055,091 |
| Age 70-79 | 8,295 | 717,214 |
| Age 80 or older | 5,930 | 357,992 |
| All households | 7,515 | 5,628,844 |

Source: U.S. Department of Energy, Residential Energy Consumption Survey 2015, analysis of microdata (age=HHAGE, usage=KWH, selected for DIVISION=1, sample weighted using NWEIGHT). Microdata available at:
<https://www.eia.gov/consumption/residential/data/2015/index.php?view=microdata>

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

ITEM I
 OVERALL RATE OF RETURN - DISTRIBUTION

Cost of Capital at December 31, 2008

| | Item | Component Ratio | Component Cost Rate | Weighted Average Cost Rate |
|---|---------------------|-----------------------|---------------------|----------------------------|
| 1 | Common Equity (1) | 48.73% | 6.505% | 3.170% |
| 2 | | | | |
| 3 | Long-Term Debt | 51.27% | 5.389% | 2.763% |
| 4 | | | | |
| 5 | Short-Term Debt (2) | <u>0.00%</u> | 0.000% | <u>0.000%</u> |
| 6 | | | | |
| 7 | Total | <u><u>100.00%</u></u> | | <u><u>5.933%</u></u> |

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Note (1): In accordance with DE 06-028, PSNH's allowed ROE is 9.67%.

Note (2): See Item VI regarding the inclusion of short-term debt in PSNH's capital structure.

Amounts shown above may not add due to rounding.

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

ITEM I
 OVERALL RATE OF RETURN - DISTRIBUTION

Proformed Cost of Capital at December 31, 2008

| | <u>Item</u> | <u>Component Ratio</u> | <u>Component Cost Rate</u> | <u>Weighted Average Cost Rate</u> |
|---|-----------------|------------------------|----------------------------|-----------------------------------|
| 1 | Common Equity | 51.12% | 10.500% | 5.367% |
| 2 | Long-Term Debt | 48.88% | 5.607% | 2.741% |
| 3 | Short-Term Debt | <u>0.00%</u> | 0.000% | <u>0.000%</u> |
| 4 | Total | <u><u>100.00%</u></u> | | <u><u>8.108%</u></u> |

5 Amounts shown above may not add due to rounding.

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

QUARTERLY SALES VOLUME

2004 - 2008

| RESIDENTIAL SALES - mWh | | | | | |
|-------------------------|---------|---------|-----------|----------|-----------|
| QUARTER ENDED | | | | | |
| YEAR | MARCH | JUNE | SEPTEMBER | DECEMBER | TOTAL |
| 2004 | 844,857 | 675,471 | 768,921 | 719,098 | 3,008,347 |
| 2005 | 849,885 | 701,042 | 872,420 | 749,707 | 3,173,054 |
| 2006 | 819,852 | 701,470 | 853,170 | 714,845 | 3,089,337 |
| 2007 | 863,028 | 706,888 | 839,853 | 762,078 | 3,171,847 |
| 2008 | 860,591 | 696,187 | 820,326 | 743,214 | 3,120,318 |

| OTHER RETAIL SALES - mWh | | | | | |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| QUARTER ENDED | | | | | |
| YEAR | MARCH | JUNE | SEPTEMBER | DECEMBER | TOTAL |
| 2004 | 1,230,078 | 1,201,789 | 1,332,266 | 1,195,924 | 4,960,057 |
| 2005 | 1,215,361 | 1,197,767 | 1,370,274 | 1,215,398 | 4,998,800 |
| 2006 | 1,202,294 | 1,200,642 | 1,350,226 | 1,187,405 | 4,940,567 |
| 2007 | 1,223,098 | 1,190,139 | 1,337,153 | 1,214,301 | 4,964,691 |
| 2008 | 1,215,132 | 1,177,879 | 1,308,621 | 1,149,001 | 4,850,633 |

| OTHER UTILITIES - mWh | | | | | |
|-----------------------|-------|------|-----------|----------|-------|
| QUARTER ENDED | | | | | |
| YEAR | MARCH | JUNE | SEPTEMBER | DECEMBER | TOTAL |
| 2004 | 0 | 5 | 3 | 3 | 11 |
| 2005 | 4 | 3 | 4 | 4 | 15 |
| 2006 | 4 | 3 | 4 | 4 | 15 |
| 2007 | 4 | 4 | 5 | 4 | 17 |
| 2008 | 5 | 4 | 5 | 4 | 18 |

| TOTAL PRIME SALES - mWh | | | | | |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| QUARTER ENDED | | | | | |
| YEAR | MARCH | JUNE | SEPTEMBER | DECEMBER | TOTAL |
| 2004 | 2,074,935 | 1,877,265 | 2,101,190 | 1,915,025 | 7,968,415 |
| 2005 | 2,065,250 | 1,898,812 | 2,242,698 | 1,965,109 | 8,171,869 |
| 2006 | 2,022,150 | 1,902,115 | 2,203,400 | 1,902,254 | 8,029,919 |
| 2007 | 2,086,130 | 1,897,031 | 2,177,011 | 1,976,383 | 8,136,555 |
| 2008 | 2,075,728 | 1,874,070 | 2,128,952 | 1,892,219 | 7,970,969 |

Note: Billed sales only; does not include unbilled sales.

STATE OF NEW HAMPSHIRE
 PUBLIC UTILITIES COMMISSION
 Concord

REPORT OF PROPOSED RATE CHANGES

UTILITY: Public Service Company of New Hampshire

DATE FILED: June 30, 2009

EFFECTIVE DATE: August 1, 2009

TARIFF NO. 7

Based on Actual Sales to New Hampshire Customers
 For the Twelve-Month Period Ending December 31, 2008

| Rate or Class of Service | Effect of Proposed Change * | Average Number of Customers | Estimated Annual Revenue ∇ | | Proposed Change | |
|---|-----------------------------|-----------------------------|----------------------------|--------------------|-----------------|-------|
| | | | Present Rates ∇∇ | Proposed Rates ∇∇∇ | Amount | % |
| Residential Service Rate R** | Increase | 416,400 | \$520,735,723 | \$548,984,494 | \$28,248,771 | 5.4% |
| General Service Rate G*** | Increase | 71,765 | 273,976,111 | 286,222,232 | 12,246,121 | 4.5% |
| Primary General Service Rate GV**** | Increase | 1,394 | 238,498,102 | 244,447,675 | 5,949,573 | 2.5% |
| Large General Service Rate LG# | Increase | 119 | 173,245,854 | 176,438,363 | 3,192,509 | 1.8% |
| Outdoor Lighting Service Rates OL & EOL | Increase | 12,294## | 12,197,045 | 13,670,183 | 1,473,138 | 12.1% |
| TOTALS: | Increase | 490,619 | \$1,218,652,835 | \$1,269,762,947 | \$51,110,112 | 4.2% |

* Show increases, decreases and net changes in each rate classification separately, where applicable.
 (See Sheet 2 for other footnotes.)

Signed by: /s/ Stephen R. Hall
 Stephen R. Hall

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Title: Rate and Regulatory Services Manager

000374

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

SUMMARY OF CURRENT AND PROPOSED DISTRIBUTION RATES

| <u>Rate</u> | <u>Blocks</u> | <u>Current Rates Aug. 2009</u> | <u>Equal % July 2010 Incl Recoup.</u> | <u>Proposed Customer, Demand Charges (1)</u> | <u>1/2 of Difference Between Equal % and Proposed</u> | <u>Proposed July 2010 Incl Recoup.</u> | <u>Proposed July 2011</u> | <u>Proposed July 2012</u> | <u>Proposed July 2013</u> |
|---------------|------------------------------|--------------------------------|---------------------------------------|--|---|--|---------------------------|---------------------------|---------------------------|
| R | Customer charge | \$ 9.87 | \$ 11.60 | | | \$ 11.60 | \$ 11.52 | \$ 11.90 | \$ 12.32 |
| | All KWH | \$ 0.03220 | \$ 0.03784 | | | \$ 0.03784 | \$ 0.03759 | \$ 0.03884 | \$ 0.04020 |
| Uncontrolled | | | | | | | | | |
| Water | Meter charge | \$ 3.48 | \$ 4.09 | | | \$ 4.09 | \$ 4.06 | \$ 4.19 | \$ 4.34 |
| Heating | All KWH | \$ 0.01578 | \$ 0.01854 | | | \$ 0.01854 | \$ 0.01842 | \$ 0.01903 | \$ 0.01970 |
| Controlled | | | | | | | | | |
| Water | Meter charge | \$ 6.13 | \$ 7.20 | | | \$ 7.20 | \$ 7.15 | \$ 7.39 | \$ 7.65 |
| Heating | All KWH | \$ 0.00094 | \$ 0.00110 | | | \$ 0.00110 | \$ 0.00109 | \$ 0.00113 | \$ 0.00117 |
| R-OTOD | Customer charge | \$ 22.92 | \$ 26.93 | | | \$ 26.93 | \$ 26.75 | \$ 27.64 | \$ 28.61 |
| | On-peak KWH | \$ 0.10291 | \$ 0.12093 | | | \$ 0.12093 | \$ 0.12012 | \$ 0.12411 | \$ 0.12847 |
| | Off-peak KWH | \$ 0.00150 | \$ 0.00176 | | | \$ 0.00176 | \$ 0.00175 | \$ 0.00181 | \$ 0.00187 |
| G | Single phase customer charge | \$ 11.12 | \$ 13.07 | \$ 13.50 | \$ 0.22 | \$ 13.29 | \$ 13.50 | \$ 13.96 | \$ 14.45 |
| | Three phase customer charge | \$ 22.24 | \$ 26.15 | \$ 27.00 | \$ 0.43 | \$ 26.58 | \$ 27.00 | \$ 27.91 | \$ 28.88 |
| | Load charge (over 5 KW) | \$ 6.73 | \$ 7.91 | \$ 7.91 | \$ - | \$ 7.91 | \$ 7.91 | \$ 8.18 | \$ 8.46 |
| | First 500 KWH | \$ 0.05568 | \$ 0.06547 | | | \$ 0.06495 | \$ 0.06339 | \$ 0.06553 | \$ 0.06781 |
| | Next 1,000 KWH | \$ 0.01380 | \$ 0.01623 | | | \$ 0.01610 | \$ 0.01571 | \$ 0.01624 | \$ 0.01680 |
| | All additional KWH | \$ 0.00488 | \$ 0.00574 | | | \$ 0.00569 | \$ 0.00555 | \$ 0.00574 | \$ 0.00594 |
| Space Heating | Meter charge | \$ 2.22 | \$ 2.61 | \$ 2.70 | \$ 0.05 | \$ 2.66 | \$ 2.70 | \$ 2.79 | \$ 2.89 |
| | All KWH | \$ 0.02730 | \$ 0.03210 | | | \$ 0.03185 | \$ 0.03108 | \$ 0.03213 | \$ 0.03325 |
| G-OTOD | Single phase customer charge | \$ 28.83 | \$ 33.90 | \$ 35.00 | \$ 0.55 | \$ 34.45 | \$ 35.00 | \$ 36.18 | \$ 37.44 |
| | Three phase customer charge | \$ 41.14 | \$ 48.37 | \$ 50.00 | \$ 0.82 | \$ 49.19 | \$ 50.00 | \$ 51.69 | \$ 53.49 |
| | Load charge | \$ 9.38 | \$ 11.03 | \$ 11.03 | \$ - | \$ 11.03 | \$ 11.03 | \$ 11.40 | \$ 11.80 |
| | On-peak KWH | \$ 0.03906 | \$ 0.04593 | | | \$ 0.04557 | \$ 0.04447 | \$ 0.04597 | \$ 0.04757 |
| | Off-peak KWH | \$ 0.00612 | \$ 0.00720 | | | \$ 0.00714 | \$ 0.00697 | \$ 0.00721 | \$ 0.00746 |
| LCS | Radio-controlled option | \$ 7.09 | \$ 8.33 | | | \$ 8.33 | \$ 8.27 | \$ 8.54 | \$ 8.84 |
| | 8, 10 or 11-hour option | \$ 6.13 | \$ 7.20 | | | \$ 7.20 | \$ 7.15 | \$ 7.39 | \$ 7.65 |
| | Switch option | \$ 7.09 | \$ 8.33 | | | \$ 8.33 | \$ 8.27 | \$ 8.54 | \$ 8.84 |
| | Radio-controlled option | \$ 0.00094 | \$ 0.00110 | | | \$ 0.00110 | \$ 0.00109 | \$ 0.00113 | \$ 0.00117 |
| | 8-hour option | \$ 0.00094 | \$ 0.00110 | | | \$ 0.00110 | \$ 0.00109 | \$ 0.00113 | \$ 0.00117 |
| | 10 or 11-hour option | \$ 0.01902 | \$ 0.02235 | | | \$ 0.02235 | \$ 0.02220 | \$ 0.02294 | \$ 0.02375 |

Notes:

(1) Customer and demand charges are those shown in PSNH's June 30, 2009 filing in Attachment SRH-8, except where the equiproportional method produces a higher charge. Energy charges have been adjusted as necessary to produce the required revenue. Rate GV demand charges have been increased and partially flattened, and energy charges have been decreased and partially flattened in order to ease the transition to Rate LG.

Residential customer cost calculation (using costs for Rate R + Rate R-OTOD)

(All entries are x \$1,000, except percentages and per-customer calculation)

Line

| | | | |
|----|----------------------------|----------------|---|
| | Net rate base (x \$1,000) | | |
| 1 | Services | 99,154 | Attach. ACOSS-2 (Perm), p. 8 (Bates 001693), line 23 |
| 2 | Meters | <u>49,226</u> | Attach. ACOSS-2 (Perm), p. 8 (Bates 001693), line 24 |
| 3 | Total rate base | 148,380 | line 1 + line 2 |
| 4 | Rate of return | 7.62% | Attach. EHC/TMD-1 (Perm), Sch. EHC/TMD-40 (Perm) (Bates 000292) |
| 5 | Return | 11,307 | line 3 x line 4 |
| 6 | Gross revenue conversion | 1.37142 | Attach. EHC/TMD-1 (Perm), Sch. EHC/TMD-2 (Perm) (Bates 000191) |
| 7 | Plant-related rev. rqmt. | 15,506 | line 5 x line 6 |
| | O & M expenses | | |
| 8 | Meter oper. | 1,630 | Attach. ACOSS-2 (Perm), p. 11 (Bates 001696), line 20 |
| 9 | Meter maint. | 235 | Attach. ACOSS-2 (Perm), p. 11 (Bates 001696), line 36 |
| 10 | Cust. accts | <u>18,102</u> | Attach. ACOSS-2 (Perm), p. 12 (Bates 001697), line 19 |
| 11 | Total O&M expenses | 19,967 | Sum of lines 8-10 |
| | Depreciation expense | | |
| 12 | Services OH | 4,323 | Attach. ACOSS-2 (Perm), p. 14 (Bates 001699), line 25 |
| 13 | Services UG | 2,916 | Attach. ACOSS-2 (Perm), p. 14 (Bates 001699), line 26 |
| 14 | Meters | <u>3,275</u> | Attach. ACOSS-2 (Perm), p. 14 (Bates 001699), line 27 |
| 15 | Total depreciation expense | 10,514 | Sum of lines 12-15 |
| 16 | Total basic customer cost | 45,987 | line 7 + line 11 + line 15 |
| 17 | No. of customers | 440,811 | Attach. ACOSS-2 (Perm), p. 18 (Bates 001703), line 37 |
| 18 | Cost per bill | <u>\$ 8.69</u> | line 16 x \$1,000 ÷ (line 17 x 12) |

Break-even analysis for Rate R-OTOD compared to Rate R (present rates)

| | Rate R | Rate R-OTOD |
|-----------------------------|---------------|--------------------|
| Customer charge | 12.69 | 29.47 |
| On Peak kWh | | 0.13235 |
| Off Peak kWh | | 0.00193 |
| All kWh | 0.04141 | |
| Assumed % of usage off peak | | 75% |

Break even equation:

$$R \text{ cust. chg.} + (R \text{ kWh chg.})(kWh) =$$

$$RODOD \text{ cust. chg.} + (1 - \% \text{ off peak})(RODOD \text{ onpeak rate})(kWh) + \% \text{ offpeak}(RODOD \text{ offpeak rate})(kWh)$$

Plug in values from above, and consolidate terms, leads to:

$$16.78 = 0.006875 \text{ kWh; then divide to solve for kWh:}$$

$$\text{kWh} = 2440.727$$

Thus, at 75% off-peak usage, the bill for distribution service under Rate R would equal the bill for distribution service under Rate R-OTOD if the customer uses 2,440.7 kWh. If the customer uses less than that amount, the bill under Rate R-OTOD would be higher than the bill under Rate R.

Comparison of revenues paid Rate R-OTOD to Rate R

| | <u>Billing units</u> | <u>Rate R-OTOD</u> | | <u>Rate R</u> | |
|-------------------------------|----------------------|--------------------|-----------------|---------------|-----------------|
| | | <u>Rate</u> | <u>Revenues</u> | <u>Rate</u> | <u>Revenues</u> |
| Customer charge | 466 | \$ 29.47000 | \$ 13,733 | \$ 12.69000 | \$ 5,914 |
| On-peak kWh | 153,613 | \$ 0.13235 | 20,331 | \$ 0.04141 | 6,361 |
| Off-peak kWh | 307,907 | \$ 0.00193 | 594 | \$ 0.04141 | 12,750 |
| Total distribution revenues | | | \$ 34,658 | | \$ 25,025 |
| Rate R-OTOD vs. Rate R | \$ 9,633 | | | | |