

**COMMONWEALTH OF PUERTO RICO  
PUERTO RICO ENERGY BUREAU**

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**IN RE: PUERTO RICO ELECTRIC  
POWER AUTHORITY RATE  
REVIEW**

**CASE NO.: NEPR-AP-2023-0003**

**ANSWERING TESTIMONY OF SUSAN TIERNEY, PH.D.  
September 2, 2025**

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**I. INTRODUCTION, PURPOSE, AND SUMMARY OF TESTIMONY**

**Q.1 Please state your name, title, employer, and business address.**

A. My name is Susan Tierney. I am a Senior Advisor at Analysis Group, Inc. (“Analysis Group”), an economic consulting firm headquartered in Boston, Massachusetts. My business address is Analysis Group, Two Prudential Plaza, 180 North Stetson Avenue, Suite 2300, Chicago, IL 60601.

**Q.2 Please describe your educational background and experience.**

A. I have a Ph.D. and Master’s degree in regional planning from Cornell University. A copy of my curriculum vitae, including prior testimony and publications, is attached to this report as Appendix A.

**Q.3 Please describe your professional experience.**

A. I worked for approximately a decade in Massachusetts state government on matters related to the electric industry. After serving as an electric-industry economist for the state’s energy office, I became the Executive Director of the state’s Energy Facilities Siting Council, the agency that reviews electric utilities’ long-term demand forecasts, supply plans, and facility proposals. From 1988 to 1991, I was Commissioner of the Department of Public Utilities, the regulatory agency with ratemaking oversight and approval for utilities in the state. From 1991 to 1993, I was Secretary of Environmental Affairs, the cabinet officer for environmental regulation and programs, and I served as chair of the Board of Directors of the Massachusetts Water Resources Authority, a publicly owned utility with responsibility for providing water and sewer services to customers in eastern Massachusetts. From 1993 to 1995, I served as Assistant Secretary of Policy at the U.S. Department of Energy, with responsibility for a range of matters related to the nation’s electric, gas, oil, coal, and other energy industries.

1 For more than two decades, I have consulted for companies, government entities, grid  
2 operators, non-profit organizations, large electricity consumers, Indian tribes, foundations, and  
3 others on energy and environmental economics, policy, ratemaking, and regulation, and I have  
4 served as an expert witness in litigation on the same topics. Throughout my consulting practice,  
5 as in my government service, I have had experience with electric utility ratemaking, demand  
6 forecasting, and supply planning. The many activities I have undertaken since leaving  
7 government include: chairing the U.S. Department of Energy's Electricity Advisory  
8 Committee; chairing the External Advisory Board of the National Renewable Energy  
9 Laboratory; and serving as a member of several committees of the National Academies of  
10 Sciences, Engineering and Medicine (including the committees on: the Future of Electric Power  
11 in the U.S.; the Role of Net Metering in the U.S.; Enhancing the Resilience of the Nation's  
12 Electric System; and Accelerating Decarbonization in the U.S.). At the National Academies, I  
13 currently chair the Board on Energy and Environmental Systems.

14 **Q.4 On whose behalf are you testifying before the Government of Puerto Rico, Public**  
15 **Service Regulatory Board, Puerto Rico Energy Bureau (the "Energy Bureau")?**

16 A. I am testifying on behalf of National Public Finance Guarantee Corporation, GoldenTree  
17 Asset Management LP, Syncora Guarantee, Inc., Assured Guaranty Inc., and the PREPA Ad  
18 Hoc Group<sup>1</sup> (collectively, the "Bondholders").

19 **Q.5 Have you previously testified before the Energy Bureau?**

20 A. No, I have not.  
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<sup>1</sup> The members of the PREPA Ad Hoc Group are listed in the Ninth Verified Statement of the PREPA Ad Hoc Group pursuant to Bankruptcy Rule 2019, Dkt. No. 5797, *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-04780-LTS, August 28, 2025.

1   **Q.6    Please describe the purpose of your testimony.**

2    A.     The purpose of my testimony is to provide the Energy Bureau with expert analysis of  
3    the appropriate treatment of debt as well as affordability considerations in this rate case.  
4    Specifically, I address whether and how PREPA’s outstanding debt should be reflected in  
5    PREPA’s revenue requirement; the inclusion of a “proposed margin” based on a debt service  
6    coverage ratio (“DSCR”); and the manner in and extent to which issues of affordability should  
7    factor into the permanent rate for PREPA, consistent with traditional cost-of-service ratemaking  
8    approaches.<sup>2</sup>

9   **Q.7    Please summarize the key points in your testimony.**

10   A.     I make the following key points in the testimony below:

11         First, electric utility rates should include the costs to finance reasonable and prudent  
12    investments and business operations, including the cost of servicing existing debt. Accounting  
13    for the cost of debt in a utility’s revenue requirement is critical because the electric industry  
14    involves investment in capital-intensive assets with long useful lives. It therefore is inconsistent  
15    with ratemaking principles of efficiency, intergenerational equity, and the provision of adequate  
16    service at just and reasonable rates to routinely use cash from operations (as opposed to  
17    financings through capital markets) as the source of funds to invest in such long-lived, capital-

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<sup>2</sup> By contrast with the term “ratemaking,” which refers to the manner in which prices are established in the utility industry, the term “traditional cost-of-service ratemaking” refers to a body of principles and practices in utility regulation where prices are set by the regulator for products and services sold by the utility (an entity with monopoly power) and with those prices determined based on a measure of the utility’s costs to provide service. The other major ratemaking approach used in the U.S. is market-based rates, where certain sellers in a competitive portion of the electric industry are allowed to set their own prices if the regulator has determined that those sellers do not have market power. Variants of these two major approaches, such as performance-based regulation, are also in use in various jurisdictions. Hempling, Scott, *Regulating Public Utility Performance*, American Bar Association, Chicago, 2021, p. 249; Federal Energy Regulatory Commission, “Frequently Asked Questions (FAQs) Market-Based Rates,” available at <https://www.ferc.gov/power-sales-and-markets/electric-market-based-rates/frequently-asked-questions-faqs-market-based>; Rocky Mountain Institute, “The Nuts and Bolts of Performance-Based Regulation,” July 2024, available at [https://rmi.org/wp-content/uploads/dlm\\_uploads/2024/07/PBR\\_Deck\\_final.pdf](https://rmi.org/wp-content/uploads/dlm_uploads/2024/07/PBR_Deck_final.pdf).

1 intensive assets. Under cost-of-service ratemaking, therefore, a utility’s revenue requirement  
2 should include the cost of capital including debt service. When regulators set revenue  
3 requirements that properly account for debt costs, customers benefit because the utility can  
4 maintain financial stability, attract capital on reasonable terms and avoid imposing on the  
5 current customer base the large upfront costs associated with cash-funded capital investments  
6 in assets with long useful lives. Failure to properly account for debt costs jeopardizes these  
7 important goals.

8         Second, the use of a rider with a placeholder for the recovery of legacy debt in rates is  
9 one efficient way to handle the inclusion of debt service obligations after the amount to be  
10 repaid to PREPA’s bondholders is determined. The approval of a legacy debt rider in this rate  
11 case is important because it will allow the utility to begin collecting funds to make legacy debt  
12 payments in a more efficient and expeditious manner (i.e., without the need for a new rate case),  
13 once the amount of PREPA’s legacy debt is resolved.<sup>3</sup>

14         Third, LUMA’s inclusion of a proposed amount of funds to support a debt service coverage  
15 ratio (“DSCR”) as part of rates is inappropriate if, as appears to be the case, LUMA’s proposed  
16 margin is designed to cover a DSCR for repayment of *future*, as-yet-unissued debt, and yet the  
17 proposed margin is calculated based on an assumed level of legacy debt. The inclusion of that  
18 specific DSCR amount is unexplained and inconsistent with the proposed cost-of-service, which  
19 does not include future, unscheduled debt obligations (and assumes cash-based funding of utility  
20 investments). Customers should not be made to bear additional costs tied to uncertain or

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<sup>3</sup> Sam Shannon’s Expert Testimony, July 3, 2025 (hereafter “Shannon Testimony”), p. 38 (“[H]aving the policy discussions in this contested proceeding will allow parties to provide input on these riders in advance of their effective dates. And finally, once the Energy Bureau makes an informed decision on the mechanics of each rider, the initial start of the LDR [Legacy Debt Rider] can be a simple compliance filing with the CILT [Contributions in Lieu of Taxes – Municipalities] and SUBA [Help to Humans Subsidy] riders”).

1 speculative future financing needs. When the amount needed for repayment of legacy debt is  
2 known, as well as the amount of any possible issuance of future debt, such costs should then be  
3 included in rates.

4 Fourth, I agree with the steps taken by the Energy Bureau to date to address affordability  
5 issues. The Energy Bureau has analyzed different budget levels for LUMA and Genera operations  
6 during the test years, rather than specifically capping the level of electricity rates that a hypothetical  
7 customer can bear.<sup>4</sup> This framework is consistent with traditional ratemaking principles and  
8 closely resembles the approach that has been used in other jurisdictions and for utilities facing a  
9 phase-in of a large or very “lumpy” investment or expense. In some of those other instances,  
10 utilities deferred the costs of lower-priority projects to avoid increasing rates too quickly  
11 (sometimes referred to as “rate shock”) or to address other customer-sensitive considerations.  
12 Those utilities ultimately were able to fund lower-priority investments at a later date.

13 On the other hand, explicit analysis of “affordability” more typically enters into utility  
14 ratemaking only in the cost-allocation and rate design phases, and not when determining the  
15 amount of revenues a utility needs to cover expenses (including its financing costs) in the revenue  
16 requirement phase. The Energy Bureau has applied these widely accepted principles already in  
17 this proceeding during the provisional rate phase by ensuring that the expenses driving the revenue  
18 requirement were limited to those that were truly necessary and prudent, and then by re-allocating  
19 (in rate design) some of the revenue requirement otherwise assigned to some customer classes to  
20 other customer classes so as to reduce the burdens on certain segments of the population.<sup>5</sup> The

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<sup>4</sup> I use the term “test years” to generally refer to the three-year period used as the basis for establishing the revenue requirement. The Energy Bureau has referred to these years as the “Test Year” (FY 2026) and “Extension Years” (FY 2027–2028). *See* Order Establishing Scope and Procedures for Rate Case, Case No. NEPR-AP-2023-0003, February 12, 2025 (hereafter “February 12 Order”), pp. 23, 27, 29, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2025/02/20250212-AP20230003-Resolution-and-Order.pdf>.

<sup>5</sup> *See* Resolution and Order, Establishment of Fiscal Year 2026 Provisional Rates and Fiscal Year 2026 Provisional

Energy Bureau should take the same approach in the permanent rate phase.

**Q.8 Please give an overview of how your testimony is organized.**

A. In Section II, I explain the concept of a utility’s revenue requirement, describe how it fits into the overall ratemaking process, and emphasize the importance of including financing costs such as principal and interest payments for debt. I then discuss the implications of PREPA’s current inability to access capital markets, evaluate how debt costs relate to the proposed revenue requirement, and assess the appropriateness of including at this stage a “margin” based on a debt service coverage ratio.

In Section III, I turn to affordability. I evaluate how the Energy Bureau has incorporated affordability considerations into this rate case thus far and explain why the arguments presented by the Institute of Competitiveness and Economic Sustainability (“ICSE”) as to affordability are incorrect. I also explain that, under traditional cost-of-service ratemaking, affordability is addressed during the cost allocation and rate design phases—for example, through the offering of special tariffs and/or subsidies for low-income customers—rather than by reducing the revenue requirement itself, as ICSE suggests. Finally, I describe how the Energy Bureau and PREPA have addressed affordability concerns in ways that are consistent with the traditional ratemaking approach.

**II. ELECTRIC UTILITY RATES SHOULD INCLUDE THE COSTS OF FINANCING REASONABLE AND PRUDENT INVESTMENTS, INCLUDING THE COST OF EXISTING DEBT**

**Q.9 What is a utility’s revenue requirement?**

A. Under standard utility ratemaking, a utility’s revenue requirement is the amount of

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Budget, Case No. NEPR-AP-2023-0003, July 31, 2025 (hereafter “Provisional Rate Order”), pp. 34-35, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2025/07/20250731-AP20230003-Resolution-and-Order.pdf>.



1 money a utility needs to collect from selling its service to customers in order to cover its  
2 reasonable costs<sup>6</sup> to provide service. This practice is consistent with the Energy Bureau's  
3 February 12 Resolution and Order establishing the scope and procedures for the rate review  
4 proceeding.<sup>7</sup> The cost-of-service ratemaking process is designed to establish the rates that will  
5 produce that revenue requirement, given a forecast of electricity sales.

6 **Q.10 How does setting the revenue requirement fit into the overall process of establishing**  
7 **the utility's rates?**

8 A. Establishing the revenue requirement is one of four principal steps in a standard cost-of-  
9 service ratemaking process, which includes: (a) determining the utility's cost to provide service  
10 (i.e., the revenue requirement); (b) assigning the revenue requirement to different functions  
11 (e.g., demand, energy, fixed/customer); (c) allocating the revenue requirement to different  
12 classes of utility customers (e.g., residential, commercial, industrial); and (d) designing rates  
13 for each customer class so that estimated sales times rates for each class produces the allocated  
14 revenue requirement for that class. I outline these steps below.

15 The first step is determining the utility's revenue requirement. For a publicly owned  
16 utility, the cost of service generally includes: reasonable and prudent expenses for labor (e.g.,

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<sup>6</sup> In my testimony, I use several terms—e.g., a utility's "reasonable costs," a "utility's costs," the "costs to provide utility service," and a utility's "cost of service"—and intend for those terms to refer to equivalent concepts, namely, a utility's prudently incurred costs. Except in my testimony where I specifically identify a particular category of costs and recommend how the Energy Bureau should address them, I am not offering opinions about the categories and amounts of costs that should be included in the ultimate revenue requirement that the Energy Bureau determines in this proceeding. Moreover, for the avoidance of doubt, I am not offering any opinions about which costs in the rate application constitute (i) Current Expenses, as defined in the Trust Agreement governing PREPA's bonds, or (ii) necessary operating expenses under 11 U.S.C. § 928(b). I have been informed by Bondholders' counsel that the Bondholders have a perfected lien on PREPA's Net Revenues and that, under the Trust Agreement, capital expenditures must be paid after debt service, not before it. I was also informed that the Title III court may address the classification of PREPA's costs and which categories of costs may be paid before debt service.

<sup>7</sup> February 12 Order, p. 5 ("A utility's revenue requirement must reflect the reasonable costs of carrying out its obligations. Whether those costs are labor costs, repair costs, customer-service costs, or the costs of carrying out contractual obligations, the revenue requirement must reflect those costs.").

1 the utility’s needed crews and other staff); annual depreciation charges to cover a year’s use of  
 2 long-lived equipment (e.g., at power plants, transmission and distribution facilities, other  
 3 buildings, trucks)<sup>8</sup>; its cost of capital (e.g., principal and interest on outstanding debt); the cost  
 4 of maintaining and operating its buildings, transmission and distribution equipment, power  
 5 plants, trucks, data and customer-service centers, and other equipment; its contractual  
 6 obligations; and other expenses.<sup>9</sup> Setting rates at levels sufficient to cover the utility’s revenue  
 7 requirement, as described above, is broadly viewed as consistent with efficiency principles,  
 8 because it allows the utility to attract capital at lower interest rates than would be available if  
 9 the utility could not collect sufficient revenues to conduct its business. The revenue requirement  
 10 therefore should include amounts needed to fund the utility’s prudently incurred investments,  
 11 as well as the costs to finance the utility’s necessary operations. Cost-of-service ratemaking to  
 12 establish just and reasonable rates—and to allow the utility to collect sufficient revenues—thus  
 13 builds upon an appropriate revenue requirement.<sup>10</sup>

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<sup>8</sup> As LUMA’s CFO Andrew Smith testified, PREPA’s current filing does not rely on plant-in-service or depreciation because it is operating under a cash funding regime: “Utility Plant in Service and Accumulated Depreciation information is not informative for the purpose of approving a revenue requirement or for ratemaking in this proceeding,” which “contrasts with typical utility rate cases where the utility has a debt-financing regime[, w]here a return on equity and debt financing would be applied to the rate base (which is based on plant in service and depreciation) to determine the allowed return dollars for the utility.” Direct Testimony of Andrew Smith, July 3, 2025 (hereafter “Smith Testimony”), pp. 49, 57.

<sup>9</sup> National Association of Regulatory Utility Commissioners (“NARUC”), “Primer on Rate Design for Cost-Reflective Tariffs,” January 2021 (hereafter, “NARUC Primer on Rate Design”), p. 10, available at <https://pubs.naruc.org/pub.cfm?id=7BFEF211-155D-0A36-31AA-F629ECB940DC>.

<sup>10</sup> I note language on this point in the Final Resolution and Order of the Puerto Rico Energy Commission (the predecessor of the Energy Bureau) in the 2017 (and most recent prior) rate case. See Final Resolution and Order, Case No. CEPR-AP-2015-0001, January 10, 2017 (hereafter “2017 Rate Order”), pp. 27-28, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2017/01/Final-Resolution-and-Order.pdf> (“We do not dispute the proposition that higher electricity prices can affect an economy negatively. If that were the only consideration, the Legislature would require PREPA to provide electricity for free. But there are other considerations. The first is statutory. The Commission must set rates sufficient to get PREPA the funds to provide reliable service. The second is practical. Until PREPA returns to financial health, it will have no access to new outside capital. Without that access, Puerto Rico faces two choices: continue to make current ratepayers pay for long-term capital expenditures..., or fail to make the investments that are necessary to fix a deteriorated physical system and prepare it for a future of renewable energy. The first choice is painful; the second choice is untenable. Making current ratepayers pay for long-term capacity expenditures, rather than allocating responsibility for those expenditures over the long lives of the associated assets, is one of the reasons rates must rise today.... Without higher rates, PREPA will be unable to

1           The second step is to categorize and functionalize the revenue requirement according to  
2   the purpose of the expenditure or investment. For example, a regulator may determine what  
3   portion of the revenue requirement is associated with expenses and/or investments designed to  
4   increase the capacity of the system to meet peak demand (e.g., investment in new transmission  
5   or distribution equipment to increase the maximum throughput capability of the system).  
6   Similarly, a portion of the revenue requirement associated with meeting variable energy needs  
7   (e.g., fuel expense tied to the total amount of electricity consumed over time) may be assigned  
8   to the energy function. As another example, some costs vary as a function of the number of  
9   customers (e.g., meters, and service connections) rather than as a function of their actual use of  
10   electricity.

11           The third step is to determine a reasonable and appropriate allocation of those different  
12   categories of costs among different customer classes (e.g., residential versus commercial), with  
13   those class-specific allocated costs then being the object of rate design in the fourth step.  
14   Different customer classes tend to use electricity according to different patterns (e.g., across  
15   seasons, days of the week, and times of day), with these patterns tending to introduce variations  
16   in what it costs a utility to serve its customers. A small commercial convenience store that is  
17   open during daytime hours seven days a week consumes electricity differently than a household  
18   where the residents are away from home during the day or a large hotel with higher occupancy  
19   rates (electricity use) during weekends. These different usage patterns (e.g., how “flat” or  
20   “peaky” a customer group’s usage pattern is) affect the costs a utility incurs to meet those  
21   customers’ needs. The cost-allocation step takes these variations into account and produces an  
22   amount of class-specific costs for each function (e.g., transmission investment versus power

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make contractual debt payments—even as those payments have been reduced by the bondholders. That means default and lawsuits in the short term, and reduced lender confidence in the long-term.”).

1 generation) that needs to be recovered from customers in that class.

2       The fourth step of ratemaking—rate design—is when pricing elements are established  
3 so that estimated sales of electricity to a particular customer class produce the estimated amount  
4 of class-specific revenues that need to be collected from that customer group (as determined  
5 during the cost allocation stage). In some instances, policy makers (e.g., legislatures, regulators)  
6 determine that it is appropriate for public policy reasons, such as affordability, to adjust rates  
7 for certain subsets of customers within a customer class (e.g., discounts for low-income  
8 residential customers, or economic development discounted rates for certain eligible  
9 commercial or industrial customers). In such instances, it is typical for the broader base of  
10 customers to pay higher rates to cover (i.e., cross-subsidize) the revenue requirements for those  
11 that receive the benefit of discounts for public policy reasons.

12       In its July 31, 2025 Resolution and Order approving provisional rates, the Energy Bureau  
13 adhered to this typical framework when it decided to (a) forgo any rate increase for customer  
14 classes that include low-income households, and (b) reallocate to all other rate classes the  
15 allocated incremental revenue requirements that would otherwise have been recouped from the  
16 subsidized classes, stating: “We make one more change, in the direction of customer-  
17 sensitivity.... the Energy Bureau has decided not to apply that rider charge to these three classes:  
18 Lifeline Residential Service, Residential Service for Public Housing, and Residential Fixed  
19 Rate for Public Housing Under Ownership of the Public Housing Administration. Their  
20 provisional-rider charge will be zero. Their share (about 4%) of the incremental amount will be  
21 borne by the other customer classes.”<sup>11</sup>

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<sup>11</sup> Footnotes in the original text are omitted. Provisional Rate Order, pp. 34-35.

**Q.11 Should the revenue requirement include debt costs?**

A. Yes. In any typical utility rate case, financing costs, such as debt-related expenses, are an important part of the revenue requirement because debt raised from capital markets is a necessary element of the utility's reasonable cost of providing service to its customers, and financing allows the utility to smooth its capital spending over time. Just as most homeowners take out a mortgage (i.e., a loan or debt) to cover the cost of purchasing a new home and then repay the cost (including both principal and interest) over the multi-year term of the loan, utilities use financing tools (such as long-term bond issuances) to fund investments in electric system equipment. For a publicly owned utility, financings are typically short-term and long-term debt instruments borrowed from the public debt market, and the revenue requirement includes amounts to repay both the principal of and interest on that debt.

**Q.12 Why is access to capital markets and low-cost capital critical for a utility?**

A. Utilities are highly capital-intensive businesses and involve large investments over long periods of time. Utilities make long-term investments in long-lived equipment like utility trucks, poles and wires, substations, power generation facilities, computer systems, buildings, and other assets with relatively long lives that are capable of providing service to customers over many years.

Utilities need to be able to access debt through commercial loans, bond markets and other financings to carry out their operations and invest in their systems in an efficient and economical way.<sup>12</sup> Access to affordable capital from public markets allows utilities to borrow at favorable rates over time instead of paying large amounts in cash upfront to fund capital expenditures. Using only cash (rather than using borrowings or other financing tools) to fund

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<sup>12</sup> In addition to accessing capital markets, a prudent utility will also take advantage of other available funding opportunities, which may include federal or state government grants, subsidies, tax credits, or loans.

1 utility investments that provide service to customers over long periods of time would require  
2 large lump sums of money to be collected in rates each year from the current set of customers  
3 to fully cover the cost of such investments, even though future customers—which will include  
4 a different set of customers—would also benefit from the assets funded by such investments.<sup>13</sup>  
5 Relying solely on cash to fund utility investments may also cause rate shock, because the utility  
6 cannot spread large costs over time. I know of no electric utility that funds the entirety of its  
7 business, and especially capital expenditures, through cash alone.

8       When regulators set revenue requirements that properly account for debt costs as well  
9 as other reasonable and prudent costs to provide service, customers benefit because the utility  
10 can maintain financial stability, attract capital on reasonable terms, and avoid imposing on  
11 customers the large upfront costs associated with cash-funded capital investments.<sup>14</sup> A utility's  
12 cost of debt is tied to its credit rating and lenders' assessments of its ability to generate sufficient  
13 revenues to repay principal and interest on their debt.<sup>15</sup> By contrast, if rates were to be set based  
14 on a revenue requirement that excludes or strands debt, it would signal that revenues are  
15 insufficient to cover the reasonable cost of providing service to customers and it would raise  
16 the cost of borrowing for the utility or cut off access to the capital markets altogether.

17 **Q.13 Does PREPA currently have access to capital markets?**

18 A. No. I understand that PREPA is currently unable to issue new debt due to its nonpayment  
19 of debt that led to its ongoing restructuring proceeding.<sup>16</sup> As a result, PREPA funds its annual  
20 activities entirely through cash collected from customers in the year the expenses are incurred,

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<sup>13</sup> Note my prior footnote quoting language from the 2017 Rate Order for PREPA's rates which makes this point.

<sup>14</sup> NARUC, "Primer on Primary Drivers of Electricity Tariffs for Utility Regulators," April 2021, p. 12, available at <https://pubs.naruc.org/pub.cfm?id=5AF87EC9-155D-0A36-31A2-6ACF453362F4>.

<sup>15</sup> Holt, Lynne, "The Importance of the Regulatory Framework for U.S. Electric Utility Creditworthiness", *The Electricity Journal*, 29(3), 2016, pp. 13-18.

<sup>16</sup> Smith Testimony, p. 26.

1 and LUMA's rate petition proposes to continue to cash fund all operations and investments  
2 through the three-year rate period.<sup>17</sup> This dynamic poses the problems discussed above,  
3 including impacts on financial stability, unfair allocation of costs to customers over time, and  
4 the inability to spread large and lumpy costs. LUMA's CFO and financial witness, Andrew  
5 Smith, also acknowledges the negative consequences of cash funding.<sup>18</sup>

6 If PREPA were to regain access to capital markets, however, it could address these  
7 problems by financing a portion of its capital spending through bonds or other financial  
8 instruments, which would allow costs of long-lived and long-useful investments to be recovered  
9 over time rather than in the year in which they are incurred.<sup>19</sup> Such an approach is also fair from  
10 an intergenerational-equity point of view, because customers in the future will be receiving the  
11 electric-service benefits of any long-lived capital asset that is otherwise fully paid for by today's  
12 ratepayers. LUMA witness Andrew Smith illustrated this point with an example: if 50% of a  
13 \$100 million investment were debt-financed at 8% over ten years, the amount collected from  
14 customers in the first year would be 43% lower, compared to cash funding, and in subsequent  
15 years only the amount required to pay annual principal and interest payments would need to be  
16 collected.<sup>20</sup> The result is that "[debt-financing] significantly reduces the impact on the rate per  
17 kWh that must be charged to the customer because less cash must be collected annually from  
18 the customer under a debt-financing regime versus a cash-financed regime."<sup>21</sup> Puerto Rico  
19 ratepayers will accordingly benefit when PREPA regains access to financial markets, but for  
20 that to happen PREPA will need to have the ability and a plan to meet its existing financial

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<sup>17</sup> Smith Testimony, p. ii ("the current regime is a cash financing model").

<sup>18</sup> Smith Testimony, p. 26.

<sup>19</sup> Smith Testimony, pp. 26-27.

<sup>20</sup> Smith Testimony, p. 27.

<sup>21</sup> Smith Testimony, p. 27.

obligations.

The Energy Bureau appears to share the view that PREPA must be positioned to timely and fully fulfill its financial obligations going forward. The Energy Bureau’s Rate Review Completeness Determination notes that a key question will be whether “the proposed rates, considering the Puerto Rico Electric Power Authority’s ongoing Title III proceeding, to the extent required or appropriate, provide for full and timely payment of the Puerto Rico Electric Power Authority’s financial obligations while ensuring the operational viability of the transmission and distribution system?”<sup>22</sup> In my opinion, to answer that question properly, the Energy Bureau should carefully scrutinize LUMA’s, Genera’s, and PREPA’s proposed budget items and levels, and then ensure that the resulting revenue requirement will allow for payment of PREPA’s legacy and potential future financial obligations.

In its February 12 Order, the Energy Bureau also observed that: “A utility’s revenue requirement must reflect the reasonable costs of carrying out its obligations,” including those related to the utility’s ability to meet its contractual obligations.<sup>23</sup> This guidance is always important in ratemaking, but it has perhaps even greater application here given the need for PREPA to return to a financially healthy state in which it can consistently meet its electricity service and contractual obligations.

**Q.14 Are specific legacy debt costs included in PREPA’s proposed revenue requirement and permanent rate in this proceeding?**

A. No. As Mr. Smith testified, “LUMA did not consider debt service obligations as part of

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<sup>22</sup> Completeness Determination of the LUMA Petition for Rate Review, Case No. NEPR-AP-2023-0003, August 19, 2025, p. 2, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2025/08/20250819-AP20230003-Resolution-and-Order-Completeness.pdf>.

<sup>23</sup> February 12 Order, p. 5.



its capital planning process.”<sup>24</sup>

**Q.15 How has LUMA proposed to account for PREPA’s legacy debt?**

A. At the direction of the Energy Bureau (in its February 12 Order), LUMA’s rate petition includes “Full Scenario” and “Low Scenario” estimates of the utility’s legacy debt that is subject to its Title III proceeding.<sup>25</sup> LUMA Schedule B-3 explains that the “Full Scenario” estimate represents payment of all outstanding principal and accrued pre-bankruptcy-petition interest of approximately \$8.5 billion, while the “Low Scenario” estimate represents payment of approximately \$2.6 billion,<sup>26</sup> which is derived from the 2025 PREPA Fiscal Plan, a document certified by the Financial Oversight & Management Board (“FOMB”) before the recent terminations of six out of seven of its members and the withdrawal of support by the bondholder group that was expected to provide funding under that plan.<sup>27</sup> I have been informed by Bondholders’ counsel that due to these developments, the FOMB’s plan of adjustment premised on the 2025 Fiscal Plan is effectively obsolete, and the \$2.6 billion figure is therefore no longer relevant.

From a revenue requirement point of view, however, LUMA witnesses explained that those figures are “illustrative” because PREPA’s Title III bankruptcy process is still ongoing and the outcome is unknown, and as such the figures were provided only to meet the Energy

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<sup>24</sup> Smith Testimony, p. 33.

<sup>25</sup> February 12 Order, p. 24.

<sup>26</sup> I note that in the “Full Scenario,” LUMA excluded post-petition interest, reportedly “because PREPA and the Oversight Board do not believe that bondholders are legally entitled to payment of post-petition interest.” LUMA Schedule B-3, note 3. I am not offering an opinion on the issue of post-petition interest, but I have been informed by Bondholders’ counsel that the Bondholders’ entitlement to post-petition interest is a disputed legal issue that has yet to be resolved by the Title III court. *See* Responses of PREPA Bondholders to Consultant Questions, Case No. NEPR-AP-2023-0003, January 2, 2025, pp. 2, 15, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2025/01/20250121-AP20230003-Responses-of-PREPA-Bondholders-to-Consultant-Questions.pdf>.

<sup>27</sup> LUMA Schedule B-3; Financial Oversight and Management Board for Puerto Rico, “February 2025 Fiscal Plan for the Puerto Rico Electric Power Authority,” February 6, 2025 (hereafter “2025 PREPA Fiscal Plan”), p. 114, available at <https://drive.google.com/file/d/1WksRhtfmoLvaZFb-5pUNkFXGEiT3t6vp/view?pli=1>.

1 Bureau's filing requirements.<sup>28</sup> While LUMA is therefore not asking for this legacy debt to be  
2 included as a dollar amount in the proposed revenue requirement, LUMA has proposed that (a)  
3 a new Legacy Debt Rider be included in the new rate tariffs resulting from this rate proceeding,  
4 and (b) the Energy Bureau approve a mechanism through which LUMA would submit a filing  
5 in the future with dollar amounts so that LUMA, on behalf of PREPA, could then efficiently  
6 and expeditiously begin collecting funds to cover the principal and interest payments on its  
7 legacy debt.<sup>29</sup>

8 **Q.16 Is it possible to include a tariff rider, without identifying a specific amount to be**  
9 **collected?**

10 A. In this situation, it is one possibility. The Title III proceedings are ongoing.<sup>30</sup> There is a  
11 possibility that the Title III court may modify the currently outstanding amount of debt, which  
12 creates uncertainty as to the amount of legacy debt PREPA will ultimately be required to pay. I  
13 agree with Mr. Shannon that approving a placeholder rider structure in the tariff now will allow  
14 the utility to begin collecting funds to make legacy debt payments in a more expeditious manner  
15 without the need for a subsequent rate case for this purpose.<sup>31</sup> Moreover, as the Energy Bureau  
16 stated in the July 31 Provisional Rate Order, Commonwealth law requires that the Energy  
17 Bureau approve a rate sufficient to enable PREPA to meet its obligations to its bondholders.<sup>32</sup>

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<sup>28</sup> Schedule B-3; Direct Testimony of Alejandro Figueroa, July 2, 2025, p. 39; Smith Testimony, p. 46.

<sup>29</sup> Shannon Testimony, pp. 16, 36-37; LUMA Schedule O-4.

<sup>30</sup> For the avoidance of doubt, I am not testifying here as to opinions or arguments related to arguments before the Title III court. I have been informed by Bondholders' counsel that the Bondholders and their representatives reserve all rights to offer opinions and make arguments to the Title III court, or otherwise, about the appropriate amount of legacy debt that PREPA should be required to pay to its bondholders.

<sup>31</sup> Shannon Testimony, p. 38 ("[H]aving the policy discussions in this contested proceeding will allow parties to provide input on these riders in advance of their effective dates. And finally, once the Energy Bureau makes an informed decision on the mechanics of each rider, the initial start of the LDR [Legacy Debt Rider] can be a simple compliance filing with the CILT [Contributions in Lieu of Taxes – Municipalities] and SUBA [Help to Humans Subsidy] riders").

<sup>32</sup> Provisional Rate Order, pp. 31-32.

In fact, approval of riders with a reconciliation mechanism is a common practice in utility ratemaking generally and has precedent in Puerto Rico specifically. PREPA's current rate tariff includes riders for fuel and purchased power and energy efficiency, among other things, that are adjusted and reconciled on a periodic basis.<sup>33</sup> In particular, I note that PREPA's rider for funding energy efficiency programs was approved before the energy efficiency programs, providers, and budgets had been finalized.<sup>34</sup>

**Q.17 How else does debt service factor into PREPA's proposed revenue requirement?**

A. In its February 12 Order, the Energy Bureau directed LUMA to include in its request an amount for a "proposed Margin" for each of the debt service requirements included in Schedule B-3 (e.g., the Low- and Full-Scenario estimates of the legacy debt currently subject to the Title III process).<sup>35</sup> The Bureau defines "Margin" as a "calculated amount, above the sum of LUMA's, PREPA's and Genera's FY2026 budgeted operating expenses and non-reimbursable capital expenditures, that is typical of the coverage that lenders require of nonprofit borrowers with investment-grade-rated long-term debt."<sup>36</sup> LUMA's proposed revenue requirement for PREPA therefore includes a margin representing "what LUMA proposes as an amount that allows the system to produce enough income above system costs to satisfy debt-service tests, maintain creditworthiness, and fund unforeseen requirements during the rate year."<sup>37</sup>

As Mr. Smith explains, LUMA's proposed margin is calculated by multiplying a DSCR by the utility's projected legacy debt service cost, which is based on the Low-Scenario estimate

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<sup>33</sup> PREPA Electric Service Rates and Riders.

<sup>34</sup> 2017 Rate Order, pp. 130, 132-133.

<sup>35</sup> February 12 Order, p. 29.

<sup>36</sup> February 12 Order, p. 25.

<sup>37</sup> Provisional Rate Order, p. 13; Schedule B-4.

discussed above.<sup>38</sup> The DSCR is defined as the expected cash flow available to cover debt service payments divided by the total debt service payments over a given time period.<sup>39</sup> As shown in Schedule B-4, LUMA proposes using a DSCR of 1.30 for purposes of its revenue requirement.<sup>40</sup> A DSCR of 1.30 means that if, for example, a utility's required principal and interest payments for the current fiscal year total \$100 million, then rates would need to generate \$130 million in net cash flow (i.e., the utility's projected revenues minus its projected operating expenses).<sup>41</sup> LUMA's rate design calculations produce the dollar value of its proposed margin in each year by multiplying a DSCR of 1.30 by the "Low Scenario" estimates of legacy debt expenses in each year.<sup>42</sup>

**Q.18 Should LUMA include the proposed "margin," which is calculated based on an assumed level of legacy debt but apparently for future debt, in the revenue requirement?**

A. It would not be appropriate to include an allowance for a "margin" in this rate case if the proposed margin is designed to cover a DSCR for repayment of *future*, as-yet-unissued debt, as

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<sup>38</sup> Smith Testimony, p. 46; Schedule B-4; Motion in Compliance with July 8<sup>th</sup> Order and Bench Orders entered during July 14<sup>th</sup> Virtual Conference, July 15, 2025 (hereafter "Motion in Compliance with July 8<sup>th</sup> Order"), p. 15, available at <https://energia.pr.gov/wp-content/uploads/sites/7/2025/07/20250715-AP20230003-Motion-in-Compl-with-July-8th-Order.pdf>.

<sup>39</sup> Although Mr. Smith does not explain the purpose of a DSCR in his testimony, such a ratio is often used by lenders in determining whether a business's expected revenues are high enough to cover the business's debt service (including both principal and interest payments). The DSCR is thus an indicator of a business' creditworthiness and is typically calculated based on estimates of operating income compared to estimates of debt service, with a DSCR signaling to the lender whether to lend to the business. Typically, the calculation of a DSCR metric is based on estimates of income and debt service, rather than (as is done here) as a tool to boost income in a revenue requirement. UNC Environmental Finance Center, "Financial Benchmark Series," available at <https://efc.sog.unc.edu/wp-content/uploads/sites/1172/2023/06/Debt-Service-Coverage-Ratio-1.pdf>.

<sup>40</sup> LUMA Schedule B-4; Motion in Compliance with July 8<sup>th</sup> Order, p. 15.

<sup>41</sup> 2017 Rate Order, p. 93.

<sup>42</sup> Motion Submitting Rate Review Petition: LUMA - Rate Design Schedules FY2026 (7.03.25).xlsx; LUMA - Rate Design Schedules FY2027 (7.03.25).xlsx; LUMA - Rate Design Schedules FY2028 (7.03.25).xlsx, Case No. NEPR-AP-2023-0003 Annexes made public by Order of July 3, 2025, *In Re: Review of the Puerto Rico Electric Power Authority Integrated Resource Plan*.

appears to be the purpose of the DSCR here.<sup>43</sup> In that scenario, it is not clear how LUMA’s proposed revenue requirement includes the direct or indirect costs (or savings) from such future debt financing versus current cash-based funding of investments. Therefore, at best, LUMA’s proposed margin here introduces an unexplained and unjustified element of costs.

Beyond the uncertainty regarding the hypothetical amount of future, unissued debt financing—and therefore the target amount of margin to be collected—the inclusion of a proposed margin introduces yet another unexplained situation: While the utility has excluded a specific amount of legacy debt from its proposed revenue requirement, it nonetheless included additional revenue designed to achieve a target DSCR *in the event its debt obligations are ultimately repaid at a reduced level* (i.e., the “Low Scenario”). In effect, LUMA’s proposal blends two incompatible scenarios: one in which the costs to service legacy debt (or even new debt, for that matter) are not being recovered at present, and another in which those same obligations presently create the need for a margin that includes coverage for nonexistent debt service. In this way, customers would be asked to bear costs today tied to coverage of either or both of (i) currently unresolved legacy obligations, and (ii) hypothetical future debt that has not been issued.

According to Mr. Smith, the purpose of the proposed margin is “for PREPA to have positive cash flow to satisfy future lenders when PREPA emerges from bankruptcy.”<sup>44</sup> The inclusion of this margin in the proposed revenue requirement thus begs the question: why should customers be charged for a margin which presumably is intended to attract future debt financing when the rate petition does not anticipate any expenditures being financed through debt in the

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<sup>43</sup> Smith Testimony, p. 47 (“[T]he margin (or net income) is a function of the debt service coverage ratio and is necessary for PREPA to have positive cash flow to satisfy future lenders when PREPA emerges from bankruptcy.”).

<sup>44</sup> Smith Testimony, p. 47.

1 near term? Or put differently, what will LUMA actually do with the money from this  
2 unnecessary margin?

3 As structured, the proposed revenue requirement imposes costs on customers to support  
4 PREPA's ability to obtain future debt-financing, even though no new investments are expected  
5 to be financed with debt until, at the earliest, after the Title III proceeding. In effect, the  
6 proposed rates appear to require customers to pay for the utility's future borrowing capacity,  
7 yet they do not provide any mechanism to pass on the potential cost-smoothing benefits of  
8 financing described above.

9 **Q.19 What should be done in response to the inconsistencies in the proposed rate structure**  
10 **that require customers to pay for the utility's future borrowing capacity without also**  
11 **passing along to them the potential cost-smoothing benefits of future financings?**

12 A. The fact that there are logical inconsistencies in the proposed rate elements leads me to  
13 reiterate the broader concern that I mentioned above: in the current proceeding, any operational  
14 and capital expenses included in the revenue requirement must be carefully scrutinized to ensure  
15 they are just and reasonable, with the expectation that some incremental revenues will  
16 ultimately need to be raised through the new rider for legacy debt. There is simply no room for  
17 imprudent or otherwise unnecessary costs to be incorporated into PREPA's new rates that would  
18 render them unjust and unreasonable. While this is always true in utility ratemaking, in these  
19 circumstances where PREPA's rates have not been reviewed for many years and where there is  
20 clearly concern at the Energy Bureau about the need for a "customer-sensitive transition,"<sup>45</sup>  
21 regulatory diligence is just as important as the prudent actions of utility management. This is  
22 the context in which I have addressed this question about the reasonableness of LUMA's

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<sup>45</sup> February 12 Order, pp. 3, 6; Provisional Rate Order, p. 35.

proposed reliance on the DSCR as calculated in the proposed rate filing. Customers should not be asked to bear additional costs tied to uncertain or speculative future financing needs.

### III. THE ENERGY BUREAU’S CONSIDERATION OF AFFORDABILITY IS CONSISTENT WITH TRADITIONAL RATEMAKING PRINCIPLES

**Q.20 How would you characterize the manner in which the Energy Bureau has addressed affordability considerations in the revenue requirement phase of this rate case?**

A. The Energy Bureau’s approach to affordability at the revenue requirement step is consistent with traditional ratemaking principles. By requiring LUMA to submit two budgets—an “Optimal Budget” and a “Constrained Budget”<sup>46</sup>—the Energy Bureau has emphasized the need to consider customers’ sensitivity to rate increases and affordability by seeking evidence about the types of costs that could be deferred in PREPA’s, LUMA’s and Genera’s budgets while still enabling adequate provision of electricity service.

The Energy Bureau’s July 31 Provisional Rate Order further underscored the need to approach ratemaking here in a manner that balances the achievement of several goals—i.e., just and reasonable rates, adequate service, affordability, and practicability.<sup>47</sup> The Energy Bureau’s

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<sup>46</sup> February 12 Order, p. 22.

<sup>47</sup> The Energy Bureau explained that, in “considering a proposed rate increase, the Energy Bureau has to consider practicability. In this context, practicability means this question: Will the rate increase actually produce the required revenue increase? Or instead, will customers react to the rate increase by reducing their consumption, or installing solar panels, or leaving Puerto Rico? An important component of practicability is affordability. If some customers cannot pay their bills, the utility will not receive the funds that it needs to provide service to all. Total revenues must be sufficient to make service adequate. Rates that are below the level needed to make service adequate are not just and reasonable rates. The relationship among those four goals, just-and-reasonable rates, adequate service, affordability, and practicability, is complex and difficult. To reach the right balance among [these considerations] requires information on such things as elasticity of demand, ability to pay, the effects on people and businesses of unpredictability in electric service, among other factors.... The Energy Bureau had these concerns in mind when, in its February 12 Order, it required the three entities [PREPA, LUMA, Genera] each to submit two budgets, an Optimal Budget and a Constrained Budget.... Continuing its concern for customer sensitivity, the Energy Bureau then limited the provisional budget to a fraction of the Constrained Budget, requiring that the provisional budget add to the existing budget only those costs associated with high-priority, noncontroversial items.” Provisional Rate Order, pp. 34-35. Note that this excerpt omits a footnote in the original text which reads “The Energy Bureau notes that the increase caused by the provisional rates is real. But we ask customers to recognize that base rates have not risen, not even to reflect inflation, since 2017, eight years ago. Had the 2017 Rate Order required annual increases to

1 emphasis on Puerto Rico ratepayers’ sensitivity to rate increases, as opposed to specifically  
 2 capping *a priori* the level of electricity rates that a hypothetical customer can bear given their  
 3 income or household budget (or what commercial and industrial customers could bear within  
 4 their own operating budgets), is consistent with traditional ratemaking principles.

5 Indeed, this framework resembles the approach that has been used in other jurisdictions  
 6 and for utilities where there has been a phase-in of an investment (e.g., when large, very  
 7 “lumpy” nuclear investments were phased into the rate base over a number of years)<sup>48</sup> or  
 8 expense (e.g., when the recovery of storm-related costs are amortized over several years).<sup>49</sup> In  
 9 these instances, the utilities eventually recovered their prudently incurred costs, even if it meant  
 10 that the recovery of some investment dollars was deferred for some years to avoid rate shock  
 11 (or to address customer-sensitive considerations).

12 As noted above, establishing the utility’s revenue requirement focuses on the appropriate  
 13 cost to provide service and typically does not involve allowing the utility to recover only a  
 14 partial share of its prudently incurred and reasonable costs needed to provide electricity, based  
 15 on a before-the-fact analysis of what customers can purportedly afford to pay. If a utility’s

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track inflation, the base rate today would be higher than the 2017 base rate by 33%.”

<sup>48</sup> For example, the New Hampshire Public Utilities Commission agreed to rates that would allocate the recovery of the Seabrook power plant costs over time, to spread out the impact on retail rates. As another example, utilities in Florida have the option to spread out collection of revenues for storm protection infrastructure over time in utility-commission-approved Storm Protection Plans, in order to balance rate impacts on customers while ensuring grid hardening. *Public Service Company of New Hampshire, et al., Plaintiffs, Appellees, and Connecticut Valley Electric Company and Central Vermont Public Service Corporation, and Unitol Corporation, et al. plaintiffs/intervenors, Appellees, v. Douglas Patch, Chairman of the State of New Hampshire Public Utilities Commission, et al., Defendants, Appellants*, 167 F.3d 15 (1st Cir. 1998), available at <https://law.justia.com/cases/federal/appellate-courts/F3/167/15/527542/>; NARUC, “State Spotlight on Resilience: The Florida Public Service Commission and Storm Protection Plans,” available at <https://pubs.naruc.org/pub/FF9E2073-E2EE-A986-C89E-1B47A6465738>.

<sup>49</sup> Some utilities in Texas and the Midwest have storm-cost-securitization riders associated with the recovery of extraordinary costs from Winter Storm Uri in 2021. See, e.g., Grubbs, Spencer, “Winter Storm Uri 2021,” Fiscal Notes, October 2021, available at <https://comptroller.texas.gov/economy/fiscal-notes/archive/2021/oct/winter-storm-reform.php>; United Cooperative Services, “Securitization After Winter Storm Uri,” available at <https://ucs.net/securitization>; Liberty, “Important Account Update for Missouri Electric Customers,” available at <https://central.libertyutilities.com/all/securitization.html>.



1 investment and expense costs are deemed reasonable and prudent in the circumstances,  
 2 regulators include such costs in the revenue requirement. That said, to the extent that utilities  
 3 and their regulators exercise restraint to address affordability issues at the revenue-requirement  
 4 step, they do so by (i) moderating the pace and degree of investment programs (e.g., the  
 5 allowable budget to modernize the utility's infrastructure, or to fund different levels of energy  
 6 efficiency budgets, and/or (ii) spreading recovery of extraordinary expenses (e.g., storm-  
 7 recovery expenses) over multiple years while still allowing the utility to expend funds as  
 8 needed.<sup>50</sup> Regulators typically do not disallow the recovery of costs (e.g., debt repayment or  
 9 depreciation charges on assets that are prudent, used and useful in providing utility service) that  
 10 have been incurred to maintain and operate the system, but rather amortize cost recovery over  
 11 several years.<sup>51</sup> These ratemaking practices are consistent with maintaining the utility's  
 12 financial health and access to lower-cost debt than would be available to the utility if its revenue  
 13 requirement did not cover its reasonable and prudent cost of service.

14 **Q.21 When does explicit affordability analysis factor into standard utility ratemaking?**

15 A. Standard utility ratemaking takes up consideration of affordability in the cost-allocation

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<sup>50</sup> One technique used in ratemaking is to defer full cost recovery of large, infrequently occurring costs, by amortizing the costs over many years. With regard to "Regulatory cost deferrals," Deloitte states that a "utility is entitled, under traditional ratemaking concepts, to rates that are adequate to recover all amounts reasonably expended in rendering service. The rates are designed to cover the usual and recurring costs of providing service, but certain items are neither usual nor expected to be routinely recurring. Such events do occur, nevertheless, and recovery is not possible unless the costs are allowed for ratemaking purposes. If the entire cost were charged in full to a single year, it would necessarily be omitted for rate-design purposes. A common solution is to defer the item's cost when incurred, and then to amortize them over a period that, in the commission's opinion, will result in fair annual charges to [the utility's] income. For financial reporting purposes, the regulator's action creates a regulated asset under Statement No. 71, which should be recorded on the balance sheet." Deloitte Center for Energy Solutions, "Regulated Utilities Manual: A Service for Regulated Utilities," 2012, p. 34, available at <https://www.canr.msu.edu/ipu/uploads/migration/2016/12/Deloitte-Regulated-Utilities-Manual-2012-2.pdf>.

<sup>51</sup> I was a utility regulator during the time when large and expensive utility investment in nuclear power plants had to be recovered in utility rates. During this period (the 1980s and 1990s), it was not uncommon for utility regulators to phase-in cost recovery of such investment over, for example, three to five years, so that consumers would not experience rate shock. Utilities were allowed to amortize the amounts through regulatory assets, which allowed eventual recovery of and on the investment.

1 and rate design phases, *not* during the calculation of the revenue requirement. Once the dollar  
 2 amount of the utility’s revenue requirement is determined and reflects the regulators’ views of  
 3 the allowable investments (e.g., prudent, used and useful) and the reasonable expenses  
 4 necessary for the prudent utility to meet its service obligations to its customers, attention then  
 5 shifts to who pays for what portions of the costs (in the cost-allocation step) and how service  
 6 will be priced to reflect such cost recovery (in the rate design step). It is not unusual for  
 7 regulators to approve discounted rates for certain customers (e.g., certain types of industrial or  
 8 commercial customers, or low-income customers) and to collect the costs of such subsidies in  
 9 the standard rates charged to other customers in those classes.<sup>52</sup> For example, utilities and their  
 10 regulators may use affordability analyses to determine whether to include discounts on rate  
 11 levels or total electricity bills charged to low-income customers and, if so, which customers are  
 12 eligible for discounts and how large those discounts should be.

13 **Q.22 Is this approach consistent with how the Energy Bureau addressed certain low-**  
 14 **income customers in its Provisional Rate Order?**

15 A. Yes. The Energy Bureau explained in its Provisional Rate Order that it would make a  
 16 “change” to address rate shock and/or affordability: “We make one more change, in the  
 17 direction of customer-sensitivity. For purposes of this provisional rate, which, again, is subject  
 18 to reconciliation, the Energy Bureau decided not to apply that rider charge to these three classes:

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<sup>52</sup> See, e.g., NARUC Primer on Rate Design, p. 21 (“In the absence of direct subsidization, regulators and utilities often employ cross-subsidization to bring down the cost of service to poorer households. Cross-subsidization is the practice of setting higher tariffs for certain customers in order to subsidize tariffs for others. For instance, tariffs for poorer households can be cross-subsidized by setting higher commercial and industrial tariffs. In some cases, cross-subsidization is used even if customers’ willingness to pay is sufficient to cover the costs of providing electricity service. Normally, in these situations, the Government or the regulator has taken the policy position that certain customer classes should shoulder more of the cost burden than others. A certain level of cross-subsidization is generally acceptable and practically necessary. While the intention of cost allocation is to ensure that all customer classes generate equal rates of return, there is generally a bit of leeway allowed. Regulators and utilities recognize that cost allocation is not a precise science and that certain policy factors might need to be considered when designing rates.”).

1 Lifeline Residential Service, Residential Service for Public Housing, and Residential Fixed  
2 Rate for Public Housing Under Ownership of the Public Housing Administration. Their  
3 provisional-rider charge will be zero. Their share (about 4%) of the incremental amount will be  
4 borne by the other customer classes.”<sup>53</sup>

5 Notably, the Energy Bureau ensured that the allowed provisional revenue requirement  
6 would be collected in full, even though it was, in effect, using the rate design phase to provide  
7 a discount to a subset of customers by charging them zero dollars for the riders in their class-  
8 specific rates. The portion of the revenue requirement that would not be collected due to these  
9 discounts was then reallocated to the other customer classes.

10 **Q.23 How have the Energy Bureau and other governmental entities dealt with affordability**  
11 **issues in PREPA’s rates in the past?**

12 A. PREPA has also previously addressed affordability concerns through a combination of  
13 subsidized rate classes, fuel discounts, and federal assistance programs. For example, PREPA  
14 offers several special residential tariffs to low-income and public housing customers. These  
15 include the Residential Fixed Rate (“RFR”) (available to customers residing in units in projects  
16 owned by the Public Housing Administration), the Lifeline Residential Service (“LRS”) Rate  
17 (available to customers who qualify under the Nutritional Assistance Program) and the  
18 Residential Service for Public Housing (“RH3”) Rate (available to customers of public housing  
19 projects supported or subsidized in whole or in part by public funds), and a Subsidized General  
20 Residential Service (“GRS”) Rate (for customers who are handicapped, elderly, or college  
21 students).<sup>54</sup> Customers served under these tariffs are also eligible for the utility’s Fuel Oil

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<sup>53</sup> Footnotes in the original text are omitted. Provisional Rate Order, pp. 34-35.

<sup>54</sup> Shannon Testimony, pp. 20-21. *See also* PREPA Electric Service Rates and Riders; LUMA, “Pay my Bills,” available at <https://lumapr.com/residential/?lang=en>.

1 Subsidy Rider or Life Preserving Equipment Discount Rider, which lower customers' monthly  
2 bills.<sup>55</sup> In addition to PREPA-administered subsidies, households with incomes below 60% of  
3 the Puerto Rico median income can apply for the federal Low Income Home Energy Assistance  
4 Program ("LIHEAP"), which helps participants pay their electricity bills.<sup>56</sup>

5 In my opinion, use of rate-design and cost-allocation methods (e.g., discounted rates)  
6 and government subsidies reflects a traditional regulatory approach used in many jurisdictions  
7 to address affordability concerns.

8 **Q.24 What are your views on the motion that ICSE filed in this proceeding?**

9 A. ICSE filed a motion to incorporate into the record its "preoccupations on the omission  
10 of considering and the lack of a ruling on affordability of [PREPA's] provisional rate."<sup>57</sup> ICSE  
11 raises what it describes as a "Death Spiral Model," in which an increase in electricity rates  
12 purportedly has knock-on effects that ultimately lead to lower electricity demand and thus lower  
13 revenues collected by the utility, creating a negative feedback loop that culminates in the  
14 collapse of the utility.<sup>58</sup>

15 As an initial observation, I note that ICSE's Motion does not describe or acknowledge  
16 the traditional ratemaking principles I testified about above, so I view ICSE's statements as  
17 providing limited value in relation to standard ratemaking practices.

18 Moreover, ICSE's Motion grossly mischaracterizes the various perspectives on  
19 affordability presented in connection with PREPA's Title III bankruptcy case in late 2023 and

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<sup>55</sup> PREPA Electric Service Rates and Riders.

<sup>56</sup> Departamento de la Familia, "Programa De Ayuda Para Energía Para Hogares De Bajos

Ingresos (LIHEAP)," available at <https://serviciosonline.adsef.pr.gov/adsefdigital/Pdf/LIHEAP%20Requisitos.pdf>.

<sup>57</sup> ICSE's Motion on the Need of Affordability Evidence & Analysis in Approving Provisional and Permanent Rates, Case No. NEPR-AP-2023-0003, July 25, 2025 (hereafter "ICSE Comments"), p. 2.

<sup>58</sup> ICSE Comments, pp. 2-4.

1 early 2024, including my own testimony there.<sup>59</sup> ICSE incorrectly asserts that the affordability  
2 concepts and parameters proposed by the FOMB’s expert witnesses “have been in place for  
3 years in the Swain Court [sic],” and then proceeds to quote those experts at length as if their  
4 flawed testimony had been formally adopted by the Title III court.<sup>60</sup> I served as an expert  
5 witness in those proceedings and robustly rebutted the affordability arguments made by the  
6 FOMB’s experts at the time.<sup>61</sup> To my knowledge, the Title III court did not rule on the proposed  
7 plan of adjustment that was at issue during the confirmation proceedings in early 2024, nor did  
8 it adopt, endorse, or make any findings about the Oversight Board’s experts’ proposed  
9 affordability framework or commentary on elasticity of demand, death spirals, or anything else.  
10 In addition, the Title III court was not engaged in a ratemaking exercise, and each of the  
11 Oversight Board’s witnesses on this subject acknowledged that the affordability framework they  
12 had presented in the Title III court had never been used in ratemaking.<sup>62</sup> Moreover, I understand  
13 that there is a new 2025 PREPA Fiscal Plan that is inconsistent in many respects with the 2023  
14 PREPA Fiscal Plan that was at issue during the most recent confirmation proceedings from  
15 which ICSE cherry-picks and misrepresents expert testimony.

16       Additionally, in my decades of experience in the electric utility industry, there has never

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<sup>59</sup> Declaration of Glenn R. George, Ph.D., Dkt. No. 4633, *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-3283-LTS, February 12, 2024, p. 35; Direct Testimony Expert Declaration of Susan Tierney, Ph.D., Dkt. No. 4848-5, *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-3283-LTS, February 12, 2024, (hereafter, “Tierney Title III Testimony”) pp. 39-41.

<sup>60</sup> ICSE Comments, p. 8.

<sup>61</sup> Tierney Title III Testimony; Expert Report of Susan Tierney, Ph.D., Dkt. No. 4848-5 (Ex. A), *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-4780-LTS, December 18, 2023.

<sup>62</sup> See Tierney Title III Testimony, pp. 10-11 (citing the deposition transcript of FOMB witness William Zarakas (“Q. And based on your experience, would utilities ever be able to recover their full revenue requirements if they designed their rate structures around what the lowest income tier could afford to pay? A. There’s no affordability generally applied in rate setting. This is a unique circumstance. Q. In your experience, that’s not how rates are typically set at utilities by focusing on what’s affordable to the lowest income tier? A. Could I broaden the answer to the question a bit? It’s not an affordability analysis. It’s generally not used by utilities in ratemaking at all.”)) See also Rebuttal Expert Report of Susan Tierney, Ph.D., Dkt. No. 4848-5 (Ex. B), *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-4780-LTS, January 12, 2024, p. 7.

1 been a U.S. utility that failed due to a death spiral, and I note that FOMB’s experts have  
2 acknowledged that fact.<sup>63</sup> There have been certain historical situations where fears of a utility  
3 death spiral arose; however, an actual death spiral never materialized because in each situation  
4 regulators reformed electricity regulations or took other steps to prevent grid defection and  
5 properly compensate electric utilities for their service.<sup>64</sup> Presumably the Energy Bureau would  
6 take similar steps in the unlikely event that a death spiral began to transpire in Puerto Rico. In  
7 fact, this ratemaking exercise, in which the Energy Bureau is working hard to establish  
8 PREPA’s reliable service and financial continuity, confirms that the Energy Bureau would act  
9 to avert a utility death spiral like the one that ICSE suggests, without evidence, might occur.

10 To date, ICSE has not submitted any testimony or evidence in this proceeding to support  
11 any of the claims it makes in its Motion. I reserve the right to respond to any testimony or  
12 evidence that ICSE (or any other intervenor) submits on affordability.<sup>65</sup>

13 **Q.25 Does this complete your testimony?**

14 A. Yes.

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<sup>63</sup> See Tierney Title III Testimony, p. 39 (citing the deposition transcript of FOMB witness Dr. Glenn George (“Q. Are you aware of any example of a utility failing due to a death spiral caused by increasing rates and load reduction? A. In terms of utility bankruptcy, no.”)); See also Rebuttal Expert Report of Susan Tierney, Ph.D., Dkt. No. 4848-5 (Ex. B), *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-4780-LTS, January 12, 2024, pp. 10-14.

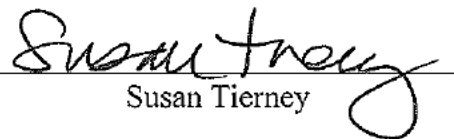
<sup>64</sup> My Rebuttal Expert Report in the Title III case explains in further detail how death spiral concerns arose in certain U.S. jurisdictions during the late 1980s and 1990s but did not materialize because regulators reformed electricity regulations, and describes how Dr. George’s assertion that death spirals caused utility bankruptcies, including in Texas, California, and Illinois, is incorrect. Rebuttal Expert Report of Susan Tierney, Ph.D., Dkt. No. 4848-5 (Ex. B), *In re Fin. Oversight & Mgmt. Bd. For Puerto Rico*, Case No. 17-BK-4780-LTS, January 12, 2024, pp. 10-15.

<sup>65</sup> I also reserve the right to offer further opinions on affordability in the Title III court, or otherwise, as necessary.

ATTESTATION

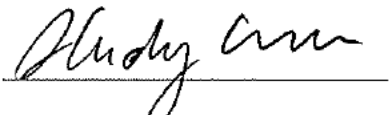
Affiant, Susan Tierney, being first duly sworn, states the following:

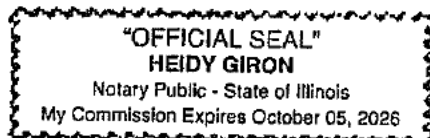
The prepared Answering Testimony constitutes my testimony in the above-styled proceeding before the Puerto Rico Energy Bureau. I would give the answers set forth in the Answering Testimony if asked the questions that are included in the Answering Testimony. I further state that the facts and statements provided herein are true and correct to the best of my knowledge, information, and belief.

  
Susan Tierney

The foregoing instrument was acknowledged and subscribed before me by Susan Tierney, in her capacity as Senior Advisor at Analysis Group, Inc., of legal age, married, and resident of Downers Grove, IL, who has been identified by means of her driver's license/ U.S. Passport with registration number [REDACTED]

In De Page Illinois, this 2<sup>nd</sup> day of September 2025.

  
Notary Public



## **Appendix A: Susan Tierney CV**



**SUSAN F. TIERNEY, Ph.D.**  
**Analysis Group**

Office (617-425-8114) and Mobile (617-901-6921)  
Susan.tierney@analysisgroup.com

180 N. Stetson Ave., Suite #2300  
Chicago, Illinois 60601

Dr. Tierney, a Senior Advisor at Analysis Group, is an expert on energy economics, regulation, and policy, particularly in the electric and gas industries. She has consulted to businesses, federal and state governments, tribes, environmental groups, energy consumers, foundations, and other organizations on energy markets, economic and environmental regulation and strategy, and energy projects. Her expert witness and consulting services have involved wholesale and retail market analysis and design, technology and market trends, regional transmission organizations, the siting of electric and gas infrastructure projects, electric system reliability, gas-electric market integration, utility ratemaking, carbon-emissions-reduction policy, and other environmental policy and regulation. She has served as an expert in civil litigation cases and regulatory proceedings before state and federal agencies.

Previously, she served as the Assistant Secretary for Policy at the U.S. Department of Energy. She was the Secretary of Environmental Affairs in Massachusetts, where she was responsible for environmental regulation and natural resource protection. She was Commissioner at the Massachusetts Department of Public Utilities, Chairman of the Board of the Massachusetts Water Resources Authority, and Executive Director of the Massachusetts Energy Facilities Siting Council.

Dr. Tierney has authored numerous articles and spoken frequently at industry conferences. She serves on a number of boards and advisory committees, including chairing: the Board of Resources for the Future; the National Academies of Sciences, Energy and Medicine's Board on Energy and Environmental Systems; and the Alfred P. Sloan Foundation. She also serves as a director or trustee of: the Barr Foundation; the Coalition for Green Capital; the Energy Foundation; and Climate Lead. She is a member of the advisory councils of New York University's Institute for Policy Integrity and the World Resources Institute. She is a member of the National Academies' Climate Crossroads Initiative, and was a member of the National Academies' Committee on Accelerating Decarbonization of the U.S. Energy System (2021-2023), Committee on the Future of Electric Power in the U.S. (2021), Committee on the Role of Net Metering (2023), and Committee on Enhancing the Resilience of the Nation's Electric Power Transmission and Distribution System (2021). Until recently, she chaired the External Advisory Council of the National Renewable Energy Laboratory (NREL) and previously chaired the Department of Energy's Electricity Advisory Committee. She was Chair of Board of Directors of ClimateWorks Foundation, Vice-Chair of the Board of the World Resources Institute, and a member of the U.S. Secretary of Energy Advisory Board.

She taught at the Department of Urban Studies and Planning at MIT and at the University of California at Irvine, and has lectured at Harvard University, Yale University, New York University, Tufts University, Northwestern University, University of Chicago, and University of Michigan. She received NARUC's Mary Kilmarx Award in 2015, and in 2020 was designated as a National Associate of the National Research Council of the Academies of Sciences, Engineering and Medicine. She earned her Ph.D. and M.A. in regional planning at Cornell University and her B.A. at Scripps College.

## EDUCATION

- 1980            Ph.D., regional planning, Cornell University
- 1976            Masters of Regional Planning, Cornell University
- 1973            B.A., art history, Scripps College  
*Studied political science at L'Institut d'Etudes Politiques, Paris, France*

## PROFESSIONAL EXPERIENCE

- 2003–Present    Analysis Group, Inc., Boston, MA, Denver, CO, and Chicago, IL  
*Senior Advisor (April 2014–Present)*  
*Managing Principal (July 2003–March 2014)*
- 1999–2003      Lexecon, Inc., Cambridge, MA (formerly The Economics Resource Group, Inc.)  
*Senior Vice President*
- 1995–1999      Economics Resource Group, Inc., Cambridge, MA  
*Principal and Managing Consultant*
- 1993–1995      U.S. Department of Energy, Washington, D.C.  
*Assistant Secretary for Policy*
- 1991–1993      Commonwealth of Massachusetts, Executive Office of Environmental Affairs, Boston  
*Secretary of Environmental Affairs*
- 1988–1991      Commonwealth of Massachusetts, Department of Public Utilities, Boston, MA  
*Commissioner*
- 1984–1988      Commonwealth of Massachusetts, Energy Facilities Siting Council, Boston, MA  
*Executive Director*
- 1983–1984      Commonwealth of Massachusetts, Executive Office of Energy Resources, Boston, MA  
*Senior Economist*
- 1982–1983      Commonwealth of Massachusetts, Energy Facilities Siting Council, Boston, MA  
*Policy Analyst*
- 1982            National Academy of Sciences, Washington, D.C.  
*Researcher*
- 1978–1982      University of California at Irvine, Irvine, CA  
*Assistant Professor*

## SELECTED CONSULTING EXPERIENCE

- **Various Confidential Engagements**  
Including power sales agreements, fuel contracts, investment strategy, project development, and other electric and gas industry matters.
- **American Transmission Systems Inc.**  
Expert witness in support of ATSI's request for revision of tax-related valuation of real property at ATSI's synchronous condenser facility in Ohio (2025).
- **Citizens Energy Corporation**  
Expert witness in support of the application of PG&E and Citizens for a transmission entitlement lease agreement (2025)
- **Commonwealth of Massachusetts, Office of Energy and Environmental Affairs, Office of Energy Transformation**  
Providing pro-bono assistance to support the "Financing the Transition Working Group" (2024)
- **Center for Applied Environmental Law and Policy**  
White paper on how vertically integrated electric utilities could maximize return on federal funding opportunities (2024)
- **Environmental Defense Fund**  
White paper on electric system reliability and the EPA's proposed rule to regulate GHG emissions from the nation's power plants (2023-2024)
- **National Grid US**  
White paper on the important role of the electric distribution system in the decarbonization of the Massachusetts economy (2023)
- **Environmental Defense Fund**  
White paper on market fundamentals and transitions affecting coal-fired power plants in the U.S. (2023).
- **Commonwealth Edison Company**  
Expert witness in support of ComEd's proposed grid modernization plan and multi-year rate case (2022-2023).
- **Coalition of Bondholders**  
Expert witness to assess demand forecasting and supply projections for the Puerto Rico Electric Power Authority (2023-2024)
- **Major Electric Utility**  
Analyzed the economic and policy implications of wholesale electricity market congestion (2022).
- **Zuni Tribal Council**  
Advisor on transmission line right-of-way compensation issues (2020-2022).
- **RISE Light & Power/Outerbridge New Jersey LLC**  
Co-author of report on the public benefits of the client's onshore transmission proposals to support the delivery of offshore wind into New Jersey (2021).
- **Pacific Gas & Electric Company, Southern California Edison, San Diego Gas & Electric Company**  
Witness on policy issues related to reforms of the companies' net energy metering tariff (2021-2022).
- **Group of U.S. and European Foundations Funding on Climate Mitigation Issues**  
Work with China clean energy expert to analyze gaps in philanthropic funding on GHG mitigation in China (2021-present).
- **Coalition of CEOs of Investor-Owned Electric Utilities and Environmental Organizations**

Project manager to support [roundtable discussions](#) on reducing greenhouse gas emissions in the U.S. power sector (2020-2022).

- **CMS Energy**  
Witness in support of CMS Energy's appeal before the Michigan Tax Tribunal (2020-2022).
- **Coalition for Green Capital**  
Co-authored a white paper on a new national green bank (2020-2021).
- **Pacific Gas and Electric Company**  
Conducted benchmarking study on investor-owned utilities' provision of wholesale distribution service and submitted testimony in PG&E's rate case filing on its wholesale distribution tariff (2020-present).
- **Santee Cooper**  
Prepared affidavit on states' electric industry structure (2020).
- **Major Electric and Gas Utility**  
Analyzed the impacts (e.g., on cost, GHG emissions, gas and electric system costs) associated with alternative strategies for shifting end-use consumers' non-electric energy uses to electricity (2019-2020).
- **La Plata Electric Association**  
Prepared testimony before the Colorado Public Utilities Commission regarding the complaints by La Plata Electric and United Power of the exit fee to be charged by Tri-State Generation and Transmission Association for La Plata's and United's potential withdrawal from the Tri-State system (2020).
- **Natural Resources Defense Council**  
Prepared a white paper on comments filed in the Federal Energy Regulatory Commission docket on whether to modify its Policy Statement related to certification of new gas pipelines (2019).
- **Delta-Montrose Electric Association**  
Provided testimony before the Colorado Public Utilities Commission regarding the complaint by Delta-Montrose of the exit fee being charged by Tri-State Generation and Transmission Association for Delta Montrose to withdraw from participation in the Tri-State system. (2019)
- **Transource**  
Provided testimony before the Maryland Public Service Commission regarding regulatory standards for reviewing transmission proposals that emanate from the regional transmission-planning process administered by a Regional Transmission Organizations. (2019)
- **New York ISO (NYISO)**  
Prepared a white paper on the impacts on New York of the introduction of a carbon pricing mechanism into NYISO wholesale markets (2019).
- **Salt River Project**  
Wrote white paper on utility ratemaking processes and principles (2019).
- **Attorney General of New York State, on behalf of a coalition of state Attorneys General**  
Preliminary assessment of the U.S. Environmental Protection Agency's proposed Affordable Clean Energy (ACE) rule with changes in the New Source Review program (2018-2019).
- **Xcel Energy (Northern States Power - Minnesota)**  
Facilitated stakeholder meetings and outreach related to NSPM's integrated resource plan (2018-2019).
- **Commonwealth Edison (ComEd)**  
Provided expert testimony before the Illinois Commerce Commission on regulatory policy issues related to proposed pilot projects involved battery energy storage systems (2018).

- **Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company**  
Prepared white paper on a future structure for California’s resource-adequacy and wholesale market structure in a low-carbon power system (2018).
- **Analysis Group, Inc.**  
Prepared a white paper about the rebound effect in estimating the impacts of changes in federal fuel economy and greenhouse-gas-emissions standards (2017-2018).
- **Merck Family Foundation**  
Analyzed the economic impacts of the Regional Greenhouse Gas Initiative’s third compliance period (2015-2017) (2018).
- **Commonwealth Edison (ComEd)**  
Provided expert testimony before the Illinois Commerce Commission on regulatory policy issues related to a proposed microgrid pilot project (2017).
- **Natural Resources Defense Council**  
Prepared a white paper on changes in the natural gas industry since 1999 when the Federal Energy Regulatory Commission issued its Policy Statement related to certification of new gas pipelines (2017).
- **New York State Research and Development Administration**  
Provided support to NYSERDA and the New York Department of Public Service on issues relevant to the New York “REV” proceeding (2017-2019).
- **Hewlett Foundation**  
Supported strategy development for the Foundation’s Environment Program (2017).
- **Advanced Energy Economy Foundation and American Wind Energy Association**  
Co-authored a white paper on wholesale power markets and system reliability and resilience (2017).
- **Entergy Vermont Yankee**  
Provided expert testimony before the Vermont Public Service Board on the public benefits of the proposed sale of Vermont Yankee to NorthStar (2016–2018).
- **Dominion Energy**  
Analyzed the implications for carbon emissions and consumer costs of a hypothetical shutdown of the Millstone Nuclear Station in Connecticut, and proposed testimony in support of Dominion filings before state agencies related to Millstone and a potential long-term power sales agreement for zero-carbon supply (2017–2019).
- **Protect the Granite State**  
Analyzed the economic implications of the proposed Northern Pass Transmission project for New Hampshire and New England (2017).
- **Environmental Defense Fund**  
Authored a white paper on challenges facing the U.S. coal industry in the 21st Century (2016).
- **Merck Family Fund**  
Co-authored a white paper on potential design issues relating to trading of carbon-emission credits between RGGI states and other states under the U.S. EPA’s Clean Power Plan (2016).
- **Consolidated Edison and Southern California Edison**  
Authored a white paper on the role of distributed energy resources in distribution utility planning and operations (2016).
- **Hawaii Gas Company**

Provided expert testimony before the Hawaii Public Utilities Commission on issues related to the proposed merger of the Hawaii Electric Companies and NextEra (2015–2016).

- **The Energy Foundation and Merck Family Fund**  
Co-authored report on the economic impacts of the Regional Greenhouse Gas Initiative's (RGGI's) second three years of implementation during 2012–2014. (2015).
- **State of Delaware**  
Provided expert testimony before the Delaware Superior Court on issues related to the impact of the RGGI program on electricity customers and the economy in Delaware (2015–2016).
- **NEXUS Gas Transmission**  
Co-authored a report on the market for natural gas in the state of Ohio (2015).
- **Electric Power Supply Association**  
Co-authored a report for EPSA on the design of State Plans to align with organized wholesale markets in response to the U.S. Environmental Protection Agency's Proposed Clean Power Plan (2015).
- **Baltimore Gas and Electric, Pepco Holdings Inc. and PHI's affiliates Pepco, Delmarva Power, and Atlantic City Electric**  
Provided expert testimony before the Federal Energy Regulatory Commission on the need for and risks associated with transmission investment (2015).
- **Exelon Generating Company LLC**  
Analyzed alternative generation technologies and the consistency of Exelon's proposal to construct a natural-gas fired peaking unit with Massachusetts energy and environmental policies (2015).
- **The Energy Foundation**  
Co-authored reports on reliability issues related to the U.S. Environmental Protection Agency's proposed Clean Power Plan. (2014–2015).
- **New England Power Generators Association**  
Analyzed the impact of legislative proposals in Massachusetts to direct electric utilities to enter into long-term power supply agreements with Canadian hydropower companies. (2014, 2015).
- **Spectra Energy**  
Provided expert report in Maine regulatory proceeding related to the potential for the State of Maine to enter into a contract to support natural gas pipeline infrastructure in New England (2014).
- **The Energy Foundation and Merck Family Fund**  
Co-authored report on the consumer impacts of the U.S. EPA's proposed Clean Power Plan. (2014).
- **Exelon Corporation and Pepco Holdings, Inc.**  
Analyzed customer and state economic benefits of the proposed merger (2014–2015).
- **Major electric utility**  
Conducted independent review of the company's internal customer and shareholder analyses of long-term resource options (2014).
- **Major merchant generating company**  
Conducted valuation of assets (2014).
- **Entergy Wholesale Commodities**  
Provided strategic advice on wholesale and retail market issues in the Northeast power markets (2013–2016).
- **Hualapai Tribe**  
Provided strategic advice regarding energy resource development and valuation of electric transmission rights of way (2014–2018).

- **Barr Foundation**  
Prepared a report on the impacts of the Massachusetts Green Communities Act of 2008 on the Massachusetts economy. (2013–2014).
- **Five California Utilities (LADWP, PG&E, SCE, SDG&E, SMUD)**  
Served on the four-person expert independent advisory panel for the third-party study of integration of renewable energy into California’s Electric System. Contributed to report titled “Investigating a Higher Renewables Portfolio Standard in California” (2013–2014).
- **State of Colorado**  
Prepared expert report on behalf of the three public utility commissioners in Colorado, in support of the complaint against them on implementing Colorado’s renewable energy standard under alleged violations of the interstate commerce clause (2013–2014).
- **Energy Foundation**  
Wrote white paper on the implications for electric system reliability of the Environmental Protection Agency’s implementation of its authority under Section 111(d) of the Clean Air Act, to regulate greenhouse gas emissions from existing power plants (2013–2014).
- **Major engineering, construction and project management company**  
Prepared an expert report on electric market conditions in a dispute surrounding cancellation of a major power plant (2012–2017).
- **Ambri (battery company)**  
Analyzed energy system issues related to integration of renewables on a military base (2013–2014).
- **Advanced Energy Economy Institute**  
Facilitated workshop for state utility commissioners in Midwest states, on advanced energy technologies and related regulatory issues (2013).
- **Environmental Defense Fund – North Carolina**  
Testified on energy efficiency program design issues (2013).
- **Advanced Energy Economy Institute (with the New England Clean Energy Council and the New England Conference of Regulatory Utility Commissioners)**  
Supported workshop on advanced energy technologies and related regulatory issues (2013)
- **Lawrence Berkeley National Laboratory Energy Program**  
Provided regulatory policy support at the NJ Board of Public Utilities on smart grid workshop (2013).
- **Advanced Energy Economy Ohio**  
Provided testimony before the Ohio Senate Public Utilities Committee in support of the Ohio Energy Efficiency Resource Standard (2013).
- **Pepco Holdings Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**  
Provided testimony in support of appropriate incentives for investment in electric transmission (2013)
- **Baltimore Gas and Electric Company**  
Provided testimony in support of appropriate incentives for investment in electric transmission (2013).
- **Advanced Energy Economy Institute**  
Survey of CEOs of advanced energy companies doing business in California, with regard to the state’s energy and environmental policies (2012–2013).
- **NSTAR and Cape Wind**  
Provided testimony in support of the long-term power contract of NSTAR and Cape Wind (2012).
- **Energy Foundation**

Conducted strategic planning for the China Sustainable Energy Program (2012).

- **Pacific Gas & Electric Company**  
Provided testimony on ratemaking issues for PG&E's proposed pipeline safety enhancement plan (2012).
- **COMPETE Coalition**  
Provided testimony on energy efficiency as part of the performance of state and wholesale electric markets in New Jersey (2011).
- **Compressed Air Energy Storage Company**  
Confidential engagement to analyze regional wholesale markets for baseload and renewable energy power generation (2011).
- **Merck Family Foundation**  
Analyzed the economic impacts of the funds collected through the auction of allowances under the Regional Greenhouse Gas Initiative (2011).
- **American Clean Skies Foundation Corporation**  
Analyzed the reliability and air emission issues associated with potential retirement of the Potomac River Generating Station (2011).
- **Colorado Public Utilities Commission**  
Analyzed the Colorado solar photovoltaic incentive program (2011).
- **Exelon Corporation and Constellation Energy (Baltimore Gas & Electric)**  
Analyzed the economic impacts on the Maryland economy associated with the proposed clean- energy commitments tied to the proposed merger of Exelon and Constellation Energy (2011–2012).
- **New England Power Generators Association**  
Analyzed competition issues in the proposed merger of Northeast Utilities and NSTAR (2011).
- **Dominion Generation**  
Analyzed the proposed state tax on output from in-state power generation (2011).
- **Exelon Corporation and Clean Energy Group**  
Analyzed electric industry issues involved in responding to the U.S. EPA's air regulations (2010-2015).
- **Major electric distribution company and independent power producer**  
Analyzed (modeled) the net benefits of retiring several generating units and replacing them with a long-term contract to provide power from a gas-fired power plant (2010).
- **Major electric utility company**  
Analyzed changing fuel-market conditions affecting the value of gas-fired power generation in the context of litigation (2010).
- **Commonwealth Edison Company**  
Analyzed the ratemaking issues for an electric distribution utility with respect to energy efficiency program effects in Illinois (2010–2011).
- **National Grid – Massachusetts electric distribution companies**  
Analyzed the market for the long-term contract for power from the Cape Wind project (2010).
- **Spectra Energy (with the Interstate Natural Gas Association of America)**  
Analyzed the markets for natural gas, and analysis of the implications of the U.S. EPA's Advanced Notice of Proposed Rulemaking on PCBs (2010–2011).
- **Renewable energy company**  
Analyzed transmission access, planning, cost allocation and siting conditions in US regions (2010-2011).
- **Indian tribe in Midwest**



Analyzed the value of an oil pipeline right-of-way (2010).

- **Dominion Generation**

Analyzed the proposed legislation in Connecticut to establish a windfall profits tax on all generating assets located in the state (2010).

- **Transmission consortium**

Analyzed cost-allocation models for an interstate transmission project involving transmission utilities and merchant transmission companies (2009–2010).

- **Massachusetts renewable energy trust**

Analyzed transmission-related approaches to the development of offshore renewable energy (2009).

- **Major electric utility**

Developed business models and approaches for deploying energy efficiency within the context of the American Climate and Energy Security Act framework (2009).

- **Major industrial electricity consumer**

Assisted in analyzing the implications of the American Climate and Energy Security Act for the company, in light of impacts on energy prices and trade considerations (2009).

- **National Grid**

Assisted in developing a revenue decoupling mechanism for retail distribution service, and testifying in electric and natural gas distribution rate cases in Massachusetts, Rhode Island, New York, and New Hampshire (2009–2011).

- **Sandia Pueblo**

Assisted in valuing a transmission corridor on tribal reservation land (2008–2011).

- **Major electric and gas company**

Provided analytic and strategic support for company's development of a business plan for energy efficiency and other energy-related investments on the customer side of the meter (2008).

- **AEP Transmission**

Prepared a white paper on the design and cost allocation framework for a high-voltage transmission system designed to support renewable and other resources (2008).

- **Reliant**

Prepared study assessing competition in the wholesale and retail electricity markets in ERCOT (2008).

- **Major environmental organization**

Analytic and strategic support for utility ratemaking policies for advancing energy efficiency in many states (2008–2012).

- **New York Independent System Operator**

Supported strategic planning and assessment for the Board of Directors (2008–2010).

- **Commonwealth Edison Company**

Provided testimony on ratemaking policy issues relating to regulatory lag (2008).

- **Energy Association of Pennsylvania (EGA)**

Analyzed of proposed legislation to cap retail electricity rates in Pennsylvania after the expiration of rate caps (2008).

- **National Association of Regulatory Utility Commissioners (NARUC)**

Prepared study on best practices relating to state regulatory agency policies and utility practices on competitive procurement of resources to serve retail electricity customers (2007).

- **KeySpan/Boston Gas**

Analyzed of the implications of utility ratemaking for valuation of utility assets for property taxation purposes (2008).

- **Electric company**  
Analyzed of state's retail and wholesale power market structure (2008).
- **Electric company**  
Prepared expert report on electric industry structure in the 1990s and 2000s (2007–2008).
- **Major electric company**  
Provided analytic support for company's development of strategic plan for company-wide GHG-reduction commitments (2008).
- **Sierra Pacific Power Company**  
Provided testimony on policy issues relating to the use of historic, future, and hybrid test years in state utility rate cases (2007–2008).
- **Harvard University**  
Provided strategic assistance relating to regulatory issues affecting the planning and design of Harvard's "green campus" development in Allston Landing (2007–2008).
- **Public Service Gas & Electric Company of New Jersey (PSEG)**  
Provided assistance in facilitating the development of a policy to address "leakage" of CO<sub>2</sub> emissions associated with the adoption of the RGGI cap-and-trade program (2007).
- **Electric Power Supply Association**  
Prepared white paper on economic, environmental, and regulatory trends in the electric industry (2007).
- **Sempra Energy Company – San Diego Gas & Electric Company and SoCalGas Company**  
Provided testimony on policy issues relating to the provision of financial incentives to electric and gas utilities for the successful provision of energy efficiency programs (2007).
- **PECO Energy Company**  
Provided advice and testimony on various economic and policy issues relating to electric industry restructuring policy (2007).  
Provided testimony on issues relating to the market for alternative energy credits and the proposal of PECO to voluntarily solicit, procure, and bank alternative energy credits (2007).
- **Commonwealth Edison Company**  
Provided testimony on issues relating to the relationship of auctions for wholesale supply for basic service customers and alternative proposals for utility resource procurement (2007).
- **ISO New England**  
Assisted in scenario planning for transmission and other alternatives (2006–2007).
- **PJM**  
Preparing report on market monitoring functions performed under various federal regulatory agencies with responsibility to oversee electricity and energy markets (i.e., the Federal Energy Regulatory Commission and the Commodities Futures Trading Commission) (2006–2007).
- **Major Industrial and Power Plant Company**  
Assisted company in analyzing market and negotiating the price and other terms and conditions for long-term gas supply and in valuing a power plant asset (2006–2007).
- **State of North Carolina**  
Provided expert witness services on electric utility economics and regulatory issues, on behalf of the Attorney General in a nuisance lawsuit to require the Tennessee Valley Authority to put in place air pollution control equipment on coal-fired power plants in TVA's system. (2006–2008)

- **Major Regional Transmission Organization**  
Performed analysis of market conditions and trends, and benchmarking market rules and reliability performance with other comparable organizations (2006–2007).
- **Special LNG Committee, Commonwealth of Massachusetts**  
Prepared *pro-bono* report on the need for natural gas and liquefied natural gas in the Northeast (2006).
- **Ute Indian Tribe of the Uintah and Ouray Reservation**  
Prepared a report on economic and policy issues relating to use of tribal lands for energy rights-of- way, as called for in Section 1813 of the Energy Policy Act of 2005 (2006).
- **New York ISO**  
Prepared white paper on fuel diversity issues in the New York market (2008).  
Prepared white papers on long-term contracting issues in states with restructured electric industries, and on the economic foundations for single-clearing-price markets versus pay-as-bid markets (2007).  
Performed economic benefit/cost study of wholesale competition into the region's wholesale electric market (2006–2007).
- **Commonwealth Edison Company**  
Provided testimony on appropriate ratemaking principles for recovery of pension-related costs in proceeding to set rates to go into effect following the transition period (2006).
- **Commonwealth Edison Company**  
Provided testimony on economic principles associated with single-price auction design versus pay- as-bid auction design (2006).
- **Exelon Corporation**  
Provided analysis of designs of mandatory carbon control policies (2005–2007).
- **Sonosky, Chambers, Sachse, Endreson & Perry, LLP, on behalf of various Indian Tribes**  
Provided analysis in support of comments filed with the Departments of Interior and Energy on energy rights of way on tribal land (as called for in Section 1813 of the Energy Policy Act of 2005) (2005–2006).  
Provided analysis in support of various tribal negotiations with energy companies with respect to valuation of energy rights of way on tribal reservation lands (2007).
- **Electric utility company**  
Performed independent evaluator services in procurement for power resources (2005–2006).
- **Power Generation Company**  
Provided analysis of product market development in MidWest and Eastern RTOs (2005).
- **New England Energy Alliance**  
Prepared a white paper on energy infrastructure needs in the New England states (2005).
- **Committee on Regional Electric Power Cooperation (of the Western Interstate Energy Board)**  
Provides research on market monitoring for Western wholesale electric markets (2005–2007).
- **Southern California Edison Company**  
Provided Independent Evaluator services for a competitive procurement of new long-term generation resources and renewable resources (2005).
- **LNG / Interstate Gas Pipeline project – Duke Energy/Excelerate project**  
Prepared regional market study for the project proposed for Massachusetts (2004–2005).
- **Electric Generating Company**  
In a contract dispute, provided expert witness services relating to whether changes in a region's wholesale power market rules nullified a power sales agreement (2004–2006).

- **Louisville Gas & Electric and Kentucky Utilities**  
For two vertically integrated electric companies, provided expert witness services in a state investigation of which regional transmission approach satisfies state policy objectives (2004).
- **Independent Generating Company**  
For a power company owned by commercial lenders in a Northeast power market, provided consulting services to monitor state regulatory policies and actions affecting power plants (2004).
- **Major Electric and Gas Company**  
Performed confidential study of the benefits, costs and current conditions in certain wholesale and retail electric power markets (2004–2005).
- **Regional Transmission Organization**  
For a confidential project, analyzed market monitoring and mitigation approaches (2004–2005).
- **Major Commercial Bank**  
For a confidential project, advise with regard to electric industry restructuring and profitability of large energy marketer and trading organization (2004–2005).
- **Consumer Energy Council of America**  
For a group of electric industry market participants, regulators, and interest groups, prepared white papers on the need for transmission enhancements in U.S. power markets (2004).
- **Retail electric company**  
Provides confidential analysis of business models and regulation approaches for providing retail electric service in the state (2004).
- **Independent system operator**  
Provided confidential analysis and research on aligning retail and wholesale market policies (2004).
- **California State attorney general**  
Provided expert witness services with regard to state resource adequacy & planning practices (2004).
- **Pacific Gas & Electric Company**  
Provided expert witness services relating to the public benefits of the settlement between PG&E and the California Public Utility Commission, to enable PG&E to emerge from bankruptcy (2003).
- **Independent power company**  
Provided consulting advice on economics of compliance strategies for air and water permits (2003).
- **Major public utility company**  
Advised on the pricing and other terms for a long-term purchase power agreement (2003).
- **Duke Power**  
Provided expert advisory services relating to ratemaking and other regulatory practices (2003).
- **Exelon Generation**  
Provided strategic advice and analytic services relating to market conditions in New England (2003).
- **Entergy Services Inc.**  
Provided services as the independent monitor of Entergy's Fall 2002, Spring 2003 and Fall 2003 Requests for Proposals for Supply-Side Resources (2002–2005).
- **Power generation company in New England**  
Provided expert testimony in contract dispute regarding allocation of uplift costs in an agreement concerning the supply of wholesale power for standard offer service (2002).
- **Connecticut Light and Power Company**  
Provided expert testimony in contract dispute regarding allocation of congestion costs in an agreement concerning the supply of wholesale power for standard offer service (2002–2003).

- **Ocean State Power**  
Provided arbitration services in a dispute regarding a gas purchase contract between Ocean State Power and ProGas Ltd. (2002–2003).
- **Regional independent system operator**  
Provided strategic advice on regional market trends and strategy (2002).
- **PJM Interconnection**  
Provided advice to the appointed mediator as part of the Alternative Dispute Resolution process, in a dispute involving PJM and a market participant (2002).
- **Duke Energy Corporation**  
Provided analysis on strategic issues in gas and electric regulatory policy for Duke Energy's corporate office, including with regard to code of conduct issues and wholesale competition (2001–2002).
- **Pacific Gas and Electric Corporation**  
Provided expert witness testimony in proceedings of the FERC on public benefits of the proposed restructuring of PG&E assets as part of its emergence from bankruptcy (2001–2002).
- **Massachusetts Renewables Trust**  
Provided assistance in support of the Trust's renewables and power quality program (2001–2002).
- **Major electric holding company**  
Prepared an analysis of the regulatory policies for reviewing merger applications in states where potential merger candidates are located (2001).
- **Western Massachusetts Electric Company**  
Provided expert testimony in contract disputes regarding allocation of congestion costs in agreements concerning the supply of wholesale power for standard offer service (2001–2002).
- **Energy Foundation**  
Researched and wrote a white paper on California's process for permitting new power plants (2001).
- **Cross-Sound Cable Company**  
Provided expert testimony regarding public benefits of proposal to construct merchant transmission facility across Long Island Sound (2001–2002).
- **Major independent power company**  
Served as expert witness in litigation surrounding power plant development project (2001–2004).
- **MASSPOWER Inc.**  
Served as Mediator in a contract dispute involving pricing of power purchases (2001).
- **NRG Energy and Dynegy**  
Provided expert witness support in regulatory proceeding to review these companies' acquisition of power plants being divested by Sierra Pacific and Nevada Power (2001).
- **Occidental Chemical Corporation**  
Served as expert witness on vertical market power in electric utility's transmission practices (2000).
- **PP&L Global**  
Provided economic and environmental analysis and expert witness support for proposal to build the Kings Park Energy power plant in Long Island, New York (2000).
- **Calpine Corporation**  
Provided economic and environmental analysis and expert witness support for the Wawayanda power project in Rockland County, NY and for the Towantic power plant in Oxford, Connecticut (2001).
- **American National Power, Calpine, El Paso, NRG Energy, Sithe, Southern Energy**

Provided support for the development of a proposal for an RTO for New England (2000–2001)

- **Duke Energy/Maritimes and Northeast Pipeline**  
Provided expert reports on the market and environmental impacts of new natural gas infrastructure and supply in New England (2000–2003).
- **Arkansas Electric Distribution Cooperatives and Arkansas Electric Cooperative Corporation**  
Served as expert witness on economic and public policy issues associated with wholesale and retail competition in Arkansas (2000–2001).
- **TransÉnergie U.S.**  
Served as expert witness on public benefits of a proposed merchant transmission facility (2000–2001).
- **Conectiv**  
Provided strategic wholesale market analysis and support for procurement of supplies for distribution utility company's provision of Basic Generation Services to retail customers (2000).
- **SCS Energy Corp. – Astoria Energy**  
Served as expert witness for proposal to build new power plant in New York City (2000–2001).
- **HEFA Power Options**  
Provided strategic advice regarding wholesale power market for retail buyers' group (2000–2003).
- **Major real estate development company**  
Provided analysis of electric and gas infrastructure for large mixed-use development (2000–2001).
- **Investment company**  
Provided strategic advice to investment company with regard to potential investment in major electric generating equipment manufacturing company (2000)/
- **Major independent power company**  
Provided economic and environmental support for company's application to construct a merchant power plant in Florida (2000).
- **Major railroad company**  
Provided expert witness support on economic and regulatory policy issues for railroad in state regulatory proceeding on a proposed utility merger (2000).
- **Coalition of Wireless Telecommunications Carriers**  
Prepared an expert report on economic benefits of wireless telecommunications (2000).
- **Major brownfield property developer**  
Provided valuation of property as a site for new electric generating facility (2000).
- **Fitchburg Gas and Electric Company**  
Provided litigation support for a gas and electric company on rate design policy (2000)/
- **Consortium of electric companies**  
Provided economic analysis, contract review, and litigation support for a consortium of electric companies with power purchase agreements with PURPA projects (1999).
- **FirstEnergy Corp.**  
Provided expert witness support regarding generation asset valuation and the impacts of a new electric industry restructuring law on the company (1999–2000).
- **Ozone Attainment Coalition**  
Provided strategic analysis and advice on electric system reliability issues relating to electric companies' implementation of 2003 NOx requirements issued by the U.S. EPA (1999).

- **Municipal electric department**  
Provided expert witness services and analysis of the economics and need for a new natural gas pipeline proposed to serve an existing electric power plant in Massachusetts (1998–2001).
- **Seneca Nation**  
Provided expert analysis and strategic advice regarding the value of transmission rights of way, in a dispute with an electric utility company (1998–2000).
- **Major cable company**  
Provided strategic advice in a series of regulatory and court cases involving inter-affiliate transactions of electric utility company entering into competitive telecommunications and cable markets (1998).
- **Major electric utility company**  
Provided expert witness support regarding structural changes in the electric industry, in litigation pertaining to the company's restructuring plans (1998–1999).
- **Sithe Energies, Inc.**  
Provided strategic advice and regulatory support on a variety of issues (market analysis, transmission and ISO issues, federal and state market rules, legislation, siting, environmental strategy) relating to the company's participation in the New England, New York, and PJM markets (1997–2003).  
Provided transition assistance to the company in its acquisition and integration of approximately 2,000 MW of existing fossil fuel generation from Boston Edison Company (1997–1998).  
Provided transition assistance to the company in its acquisition and integration of approximately 4,100 MW of existing fossil and hydroelectric generation capacity from GPU Genco (1998–1999).  
Provided support for the company's participation in electricity product markets under development in New England, New York and PJM (1997–2002).  
Provided strategic project development advice and expert witness support for the company's applications to construct three natural gas merchant power plants (totaling 2865 megawatts) in Everett, Weymouth, and Medway, Massachusetts. (1998–2001)  
Provided strategic guidance and regulatory support regarding design of air quality improvement plan for existing fossil units at Mystic Station. (1998–2001)  
Provided strategic guidance regarding company's natural gas-fired merchant power plant development projects in Ontario, Canada (2000–2001).
- **Natural Resources Canada**  
Prepared a white paper on the implications for electric system reliability in Canada that are associated with restructuring the electric industry in the United States (1999).
- **Cummins Engine Company, Inc.**  
Provided strategic analysis on implications of national energy and environmental policies for the Company's long-term business opportunities (1999).
- **Electric utility company**  
Provided advice and regulatory support with regard to the economics and prudence of an existing long-term power purchase agreement (1998).
- **National Association of Regulatory Utility Commissioners (NARUC)**  
Assisted the Executive Director and NARUC leadership in updating its strategic plan and in preparing a business plan for its implementation (1998).
- **State energy office**  
Assisted in analyzing options for supporting renewable resource development in the state and in designing a market-based strategy to implement a new renewables portfolio standard (1997–1998).
- **U.S. Generating Company (PG&E Generating Company)**

Provided analysis of and testimony on the economic, reliability, and environmental benefits to the host state and region of a new merchant power generation facility: the 360-megawatt Millennium project in Massachusetts (1996–1997).

Provided analysis of and testimony on the economic, reliability, and environmental benefits of a new merchant power generation facility: the 792-megawatt Lake Road Generating Project in Connecticut (1997–1998).

- **Pennsylvania Power & Light Company**  
Provided strategic guidance, economic and policy analysis, and regulatory support for electric utility company as it developed and proposed its plan for restructuring its company for retail competition. Provided expert witness testimony on rate design policy issues (1996–1998).
- **Major diversified electric equipment company**  
Provided strategic advice and analysis on market opportunities and risk in various regions of the U.S. electric industry, under numerous restructuring scenarios (1996–1997).
- **Major nationwide electricity consumer**  
Conducted analysis of buying options and strategies for acquisition of electricity services in states with customer choice in retail generation markets (1997).
- **National Council on Competition in the Electric Industry**  
Prepared a Briefing Paper on Regional Issues in Electric Industry Restructuring, for the NCCEI – a joint project of the National Association of Regulatory Utility Commissioners, the National Conference of State Legislatures, the U.S. DOE and the U.S. EPA (1997).
- **Major western coal company**  
Analysis of western states’ electric industry restructuring policies and market prices for power in various states within the Western Systems Coordinating Council area (1996–1997).
- **Major gas pipeline company**  
Provided analysis of market structures and prices for generation and delivery services in electric service territories where the gas pipeline would locate facilities that use electricity (1997).
- **Major electric supply company**  
Provided analysis of regional electricity market conditions to support the company’s analysis of the value of various utility assets that were being divested as part of corporate restructuring (1997).
- **Massachusetts Division of Energy Resources**  
Analyzed Boston Gas Company’s proposal for unbundling its retail service, its proposal for performance-based rates, and its plan for departing the merchant function (1996–1998).
- **Massachusetts Division of Energy Resources**  
Assisted the state’s energy office in developing policies for establishing a statewide fund to support renewable resource development as part of the state’s electric industry restructuring plan (1997).
- **Massachusetts Water Resources Authority Advisory Board**  
Analyzed opportunities for use of the Authority’s energy-using and -producing assets, to position itself beneficially as a participant in a restructured retail electricity market in New England (1996–1997).
- **Coalition of marketers and independent power producers**  
Analyzed state regulatory proposals for restructuring the electric industry (1996–1997).
- **Major independent power producer**  
Analyzed market opportunities and risks for merchant plant development in a U.S. region (1996).
- **Major independent power producer**  
Analyzed the expected market price of power in two regions of the U.S. electricity markets (1996).



- **Group of municipal electric companies in New York State**  
Served as expert witness on cost allocation issues in litigation on wholesale power contracts (1996).

## TESTIMONY

**Many confidential expert reports, testimonies, declarations, affidavits, and depositions.**

- **On behalf of American Transmission Systems, Inc.**  
Before the Lake County Board of Revision Proceedings for tax valuation of real property. Testimony of Susan Tierney, August 20, 2025.
- **On behalf of Pacific Gas & Electric Company and Citizens Energy Corporation**  
Before the *California Public Utilities Commission*, Application of Pacific Gas & Electric Company for Approval Under Public Utilities Code Section 851 to Lease Entitlements to Transmission Projects to Citizens Energy Corporation, Application 24-03-009, Testimony of Susan Tierney, January 31, 2025.
- **On behalf of Environmental and Public Health Respondent-Intervenors (in the motion to stay the EPA's Mercury and Air Toxics Rule)**  
Before the *U.S Court of Appeals for the District of Columbia Circuit*, State of North Dakota, et al., v. U.S. Environmental Protection Agency, No. 24-1119, Declaration of Susan Tierney, July 22, 2024.
- **On behalf of Environmental and Public Health Respondent-Intervenors (in the motion to stay the EPA's Power Plant GHG Rule)**  
Before the *U.S Court of Appeals for the District of Columbia Circuit*, State of West Virginia, et al., v. U.S. Environmental Protection Agency, No. 24-1120, Declaration of Susan Tierney, June 11, 2024.
- **On behalf of her own behalf**  
Before the *Federal Energy Regulatory Commission*, 2023 Electric Reliability Technical Conference, "Reliability Implications of EPA's Proposed Rule on Greenhouse Gas Standards and Guidelines for Fossil-Fuel Power Plants," November 9, 2023.
- **On behalf of her own behalf**  
Before the *Senate Budget Committee*, Hearing on "Beyond the Breaking Point: The Fiscal Consequences of Climate Change on Infrastructure," July 26, 2023.
- **On behalf of Ad Hoc Group of PREPA Bondholders, et al.**  
Before the *U.S. District Court for the District of Puerto Rico*, Main Docket, 17-BK-3283-LTS and Case No. 17-BK-4780-LTS; Expert Report, May 5, 2023, December 18, 2023, January 12, 2024; cross-examination at deposition, May 31, 2023, January 22, 2024; testimony and cross-examination at trial, June 7<sup>th</sup>, 2023; declaration and cross-examination at trial, March 12-13, 2024.
- **On behalf of Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Order Requiring Commonwealth Edison Company to file an Initial Multi-Year Integrated Grid Plan and Initiating Proceeding to Determine Whether the Plan is Reasonable and Complies with the Public Utilities Act and Verified Petition for Approval of a Multi-Year Rate Plan under Decision 16-108.18 of the Public Utilities Act, Consolidated Dockets No. 22-0486 and 23-0055, 2021, Direct Testimony, January 17, 2023; Rebuttal Testimony, June 27, 2023; Surrebuttal Testimony, August 14, 2023.
- **On her own behalf**  
Before the *Federal Energy Regulatory Commission*, Technical Conference on Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations," Docket No. PL21-3-000, November 19, 2021.
- **Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company**  
Before the *California Public Utilities Commission*, Order Instituting Rulemaking to Revisit Net Energy Metering Tariffs Pursuant to Decision 16-01-044, and to Address Other Issues Related to Net Metering,

Docket No. R.20-08-020, Opening Testimony (June 18, 2021), Rebuttal Testimony, July 16, 2021, cross-examination at hearing (July 26-27, 2021).

- **On behalf of CMS Energy**

Before the *Michigan Tax Tribunal*, CMS Energy Corporation v. Michigan Department of Treasury, Docket No. 19-003783, affidavit, supplemental affidavit and cross-examination at deposition (2021).

- **On her own behalf**

Before the *House Committee on Energy and Commerce* Subcommittee on Energy Subcommittee Hearing on “The CLEAN Future Act and Electric Transmission: Delivering Clean Power to the People,” June 29, 2021.

- **On her own behalf**

Before the *Federal Energy Regulatory Commission*, Workshop on the Office of Public Participation, April 16, 2021.

- **On her own behalf**

Before the *House Committee on Science, Space and Technology*, hearing on “Lessons learned from the Texas blackouts: Research needs for a secure and resilient grid,” March 18, 2021.

- **On her own behalf**

Before the *Federal Energy Regulatory Commission*, Technical Conference on Carbon Pricing in Organized Wholesale Electricity Markets, Docket No. AD20-14-000, September 30, 2020.

- **Pacific Gas and Electric Company**

Before the Federal Energy Regulatory Commission, in the Matter of Pacific Gas and Electric Company’s Wholesale Distribution Tariff Rate Case, Docket ER20-2878-000, Testimony, September 15, 2020; cross-examination at hearing, March 9, 2023.

- **Santee Cooper**

Before the Court of Common Pleas for the Ninth Judicial Circuit of South Carolina, City of Goose Creek v. South Carolina Public Service Authority, Civil Action No. 2020-CP-08-00821, Affidavit, August 24, 2020.

- **Amicus Curiae Brief of Susan Tierney in Support of Petitioners the Environmental Defense Fund in Support of Reversal of the Challenged Orders of the Federal Energy Regulatory Commission**

Before the *U.S. Court of Appeals for the District of Columbia Circuit*, in the case of Environmental Defense Fund v. Federal Energy Regulatory Commission, Case Nos. 20-1016 and 20-1017, Petition for Review of Orders of the Federal Energy Regulatory Commission, July 1, 2020.

- **On her own behalf**

Before the House Energy Subcommittee of the House Energy and Commerce Committee, at hearing on the Natural Gas Act, February 5, 2020.

- **La Plata Electric Association**

Before the *Colorado Public Utilities Commission*, in the matter of La Plata’s and United Power’s complaints that the Tri-State Generation and Transmission Association’s exit fee is unjust, unreasonable and discriminatory, Proceeding Nos. 19F-0620E and 19F-0621E, Testimony, January 10, 2020; Cross-Examination at Deposition, January 31, 2020; Rebuttal Testimony, March 10, 2020; Cross-Examination at hearings, May 18, 2020.

- **Delta Montrose Electric Association**

Before the *Colorado Public Utilities Commission*, in the matter of Delta-Montrose’s complaint that the Tri-State Generation and Transmission Association’s exit fee is unjust, unreasonable and discriminatory, Proceeding No. 18F-0866E, Rebuttal Testimony, June 28, 2019.

- **Transource Maryland LLC**

Before the *Maryland Public Service Commission*, in the matter of Transource’s request for a certificate of

public convenience and necessity to construct new high-voltage transmission facilities in Maryland, Case No. 9471, rebuttal testimony, May 8, 2019, and testimony under cross-examination at hearing before the Maryland PSC, June 24, 2019.

- **On her own behalf**  
Before the *Senate Energy and Natural Resources Committee*, at hearing on the electric industry in a changing climate, oral and written testimony, March 5, 2019.
- **Commonwealth Edison Company (ComEd)**  
Before the *Illinois Commerce Commission*, in the matter of ComEd's petition concerning the annual formula rate update and revenue requirement (on regulatory policy issues relating to two battery energy storage systems proposed to be part of ComEd's distribution services), Docket No. 18-0808, surrebuttal testimony, August 29, 2018.
- **Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company**  
Before the *California Public Utility Commission*, in the matter of the Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years, Rulemaking 17-09-020, July 10, 2018.
- **Dominion Energy Nuclear Connecticut**  
Before the *Connecticut Public Utilities Regulatory Authority*, in the matter of implementation of Public Act 17-3, Docket No. 18-05-04, May 2018; testimony under cross-examination, August 2018.
- **Dominion Energy Nuclear Connecticut**  
Before the *Connecticut Department of Energy & Environmental Protection and Public Utilities Regulatory Authority*, in the matter of DEEP's and PURA's joint proceeding to implement the Governor's Executive Order Number 59, Docket No. 17-07-32; affidavit, January 8, 2018.
- **Amici Curiae Brief of Independent Economists in Support of New York State Public Service Commission**  
Before the *U.S. Court of Appeals for the Second Circuit*, in the matter of the Coalition for Competitive Electricity, et al., v. Zibelman et al., Case No. 17-2654-cv, On Appeal from a Final Judgment of the United States District Court for the Southern District of New York, No. 16-cv-8164 (VEC), November 22, 2017.
- **Commonwealth Edison Company (ComEd)**  
Before the *Illinois Commerce Commission*, in the matter of ComEd's petition concerning the implementation of a demonstration distribution microgrid, Docket No. 17-0331, rebuttal testimony submitted October 27, 2017; surrebuttal testimony, November 20, 2017.
- **On her own behalf**  
Before the *House Committee on Energy and Commerce, Subcommittee on Energy*, Hearing on "Powering America: Defining Reliability in a Transforming Electricity Industry, October 3, 2017 (testimony dated September 12, 2017, the original date of the hearing).
- **NorthStar Decommissioning Holdings, LLC, NorthStar Nuclear Decommissioning Company, LLC, NorthStar Group Services, Inc., LVI Parent Corp., NorthStar Group Holding, LLC, Entergy Nuclear Vermont Investment Company, and Entergy Nuclear Operations, Inc.**  
Before the *Vermont Public Service Board*, in the matter of the Joint Petition to transfer ownership of Entergy Nuclear Vermont Yankee, LLC, Docket No. 8880, December 16, 2016.
- **Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC, Entergy Nuclear FitzPatrick, LLC, and Entergy Nuclear Operations, Inc.**  
Before the *New York Public Service Commission*, in the matter of the Proceeding on Motion of the

Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Case 15-E-0302, Affidavit of Susan Tierney Regarding the Staff White Paper on a Clean Energy Standard, April 21, 2016.

- **Amici Curiae Brief of Former State Environmental and Energy Officials in Support of the U.S. Environmental Protection Agency**  
Before the *U.S. Court of Appeals for the District of Columbia Circuit*, in the case of *State of West Virginia v. U.S. EPA*, Case No. 15-1363, Petition for Review of a Final Agency Action of the U.S. EPA 80 Fed. Reg. 64,662, April 1, 2016.
- **Environmental and Public Health Respondent-Intervenors (Natural Resources Defense Council, Environmental Defense Fund, Sierra Club, Center for Biological Diversity, American Lung Association, Clean Air Council, Clean Wisconsin, Conservation Law Foundation, and Ohio Environmental Council, West Virginia Highlands Conservancy, Ohio Valley Environmental Coalition, Coal River Mountain Watch, Kanawha Forest Coalition, Mon Valley Clean Air Coalition and Keepers of the Mountains Foundation)**  
Before the *U.S. Court of Appeals for the District of Columbia Circuit*, Nos. 15-1365 and Consolidated Cases, in Re: *West Virginia, et al.*, on Petitions for the U.S. Environmental Protection Agency, prepared declaration, December 8, 2015.
- **New England Power Generators Association (NEPGA)**  
Before the *Massachusetts Joint Committee on Telecommunications, Utilities and Energy*, Hearing on Clean Energy Procurement, Transmission and Financing, Statement on SB 1965 (An Act relative to energy sector compliance with the Global Warming Solutions Act), September 29, 2015
- **Natural Resources Defense Council, Environmental Defense Fund, Sierra Club, Center for Biological Diversity, Clean Air Council, Clean Wisconsin, and Conservation Law Foundation** Before the *U.S. Court of Appeals for the District of Columbia Circuit*, Nos. 15-1277 & 15-1284 in Re: *West Virginia, et al.*, and in Re: *Peabody Energy Corp.*, on Petitions for Extraordinary Writ, prepared declaration, August 31, 2015.
- **Pepco Holdings, Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**  
Before the *Federal Energy Regulatory Commission*, in Delaware Division of Public Advocate, *et al.*, v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013; prepared answering testimony, June 2, 2015; and prepared cross-answering testimony, August 21, 2015.
- **Hawaii Gas Company**  
Before the *Public Utilities Commission of Hawaii*, in the Matter of the Application of Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., Maui Electric Company, Limited, and NextEra Energy, Inc., for Approval of the Proposed Change of Control and Related Matters, Docket No. 2015-0022, answering and direct testimony filed July 20, 2015, rebuttal testimony, October 5, 2015. Cross-examination under oath, February 9, 2016.
- **Delaware Department of Natural Resources and Environmental Control**  
Before the *Superior Court of the State of Delaware in and for Sussex County*, C.A. No. S13C-12-025 RFS, in Re: *David T. Stevenson, et al., v. Delaware Department of Natural Resources and Environmental Control and David S. Small*, prepared affidavit, July 15, 2015, prepared affidavit, September 8, 2016; prepared affidavit, June 7, 2016; prepared affidavit, June 2, 2017; deposition, August 9, 2017; testimony at trial, December 4, 2017.
- **On her own behalf**  
Before the *House Committee on Science, Space and Technology*, Subcommittee on the Environment and Subcommittee on Energy, Hearing on the U.S. Energy Information Administration Report: Analysis of

the EPA's Clean Power Plan, June 24, 2015.

- **Baltimore Gas and Electric, Pepco Holdings Inc. and PHI's affiliates Pepco, Delmarva Power, and Atlantic City Electric**

Before the *Federal Energy Regulatory Commission*, in the Matter of Delaware Division of the Public Advocate, et. al., v. Baltimore Gas and Electric Company, et al, Docket Nos. EL13-48-001 and EL15-27-000 (Consolidated), June 2, 2015.

- **On her own behalf**

Before the *House Committee on Commerce and Energy*, Subcommittee on Energy and Power, Hearing to Examine EPA's Proposed 111(d) Rule for Existing Power Plants and the Proposed Ratepayer Protection Act, April 14, 2015.

- **Exelon Generating Company LLC**

Before the *Massachusetts Energy Facilities Siting Board* for Approval to Construct a 200 MW Simple Cycle Combustion Turbine Generating Facility in the Town of Medway, Massachusetts, Exelon West Medway, LLC/Exelon West Medway II, LLC, EFSB Docket No. 15-1/D.P.U. 15-25, March, 2015; cross-examination under oath, December 8, 9, and 14, 2015.

- **On her own behalf**

Before the *House Committee on Investigations and Government Oversight*, Subcommittee on Interior, Hearing to Examine the Impacts of EPA Air and Water Regulations on the States and the American People, February 26, 2015.

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *District of Columbia Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 18, 2014); rebuttal testimony (December 17, 2014); testimony under cross-examination (April 8, 2015); direct testimony in support of Settlement Agreement, October 20, 2015; testimony under cross-examination, December 4, 2015.

- **On her own behalf**

Before the *Federal Energy Regulatory Commission*, Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets, and Energy Infrastructure, Docket No. AD15-4-000, February 19, 2015.

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *Maryland Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (August 19, 2014); rebuttal testimony (January 7, 2015); testimony under cross-examination (January 26–27, 2015); post-settlement testimony (March 27, 2015); supplemental post-settlement testimony (April 14, 2015); testimony under cross-examination (April 15, 2015).

- **Algonquin Gas Transmission and Maritimes & Northeast Pipeline (Spectra Energy)**

Before the *Maine Public Utilities Commission*, Investigation of Parameters for Exercising Authority Pursuant to the Maine Energy Cost Reduction Act, 35-A M.R.S.A. § 1901, Docket No. 2014-00071, testimony under cross-examination, July 11, 2014, and August 8, 2014.

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *Delaware Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 27, 2014), rebuttal testimony (January 12, 2015).

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *New Jersey Board of Public Utilities*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 27, 2014), rebuttal testimony (December 10, 2014)

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *District of Columbia Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 18, 2014), rebuttal testimony (December 17, 2014).

- **On her own behalf**

Before the *Oregon State Legislature's House Interim Committee on Revenue, Senate Interim Committee on Finance and Revenue*, on "Consideration of the Feasibility and Implications of a Clean Air Tax or Fee in Oregon: Implementing Greenhouse Gas Emission Reduction Policies – Experience from Other States," January 15–16, 2014.

- **On her own behalf**

Before the *U.S. House of Representatives Energy and Commerce Subcommittee on Energy and Power*, "Hearing on EPA's Proposed GHG Standards for New Power Plants and H.R. \_\_ Whitfield- Manchin Legislation," November 14, 2013.

- **Joshua Epel, James Tarpey, and Pamela Patton, et al.**

Before the *U.S. District Court of the State of Colorado*, on behalf of Joshua Epel, James Tarpey, and Pamela Patton (commissioners of the Colorado Public Utilities Commission), and Environment Colorado, Conservation Colorado Education Fund, Sierra Club, The Wilderness Society, Solar Energy Industries Association, and Interwest Energy Alliance, in re: *American Tradition Institute and Rod Lueck, v. Epel et al.*, Civil Action Number 11-cv-00859-WJM-BMB, expert report, November 7, 2013.

- **On her own behalf**

Before the *Federal Energy Regulatory Commission*, in the Matters of Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators," Docket No. AD13-7-000, re: considerations for the future, September 9, 2013.

- **On behalf of Entergy Nuclear Vermont Yankee**

Before the *U.S. District Court, District of Vermont*, in Central Vermont Public Service Corporation and Green Mountain Power Corporation v. Entergy Nuclear Vermont Yankee, Docket No. 2:12-cv-10- wks, expert report, May 8, 2013.

- **Environmental Defense Fund and North Carolina Sustainable Energy Association**

Before the *Public Utilities Commission of North Carolina*, Docket E-7, SUB 1032, August 7, 2013.

- **Advanced Energy Economy Ohio**

Before the *Ohio Senate Public Utilities Committee* in support of the Ohio Energy Efficiency Resource Standard, April 9, 2013.

- **Pepco Holdings, Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**

Before the *Federal Energy Regulatory Commission*, in Delaware Division of Public Advocate, et. al., v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013.

- **Major engineering, construction and project-management company**

Prepared an expert report on electric market conditions in a dispute surrounding cancellation of a major power plant, 2012.

- **Baltimore Gas and Electric Company**

Before the *Federal Energy Regulatory Commission*, in Delaware Division of Public Advocate, et al., v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013.

- **NSTAR Electric Company and Cape Wind LLC**

Before the *Massachusetts Department of Public Utilities*, in the Petition of NSTAR Electric Company for Approval of a Proposed Long-Term Contract for Renewable Energy with Cape Wind Associates, LLC

Pursuant to St. 2008, c. 169, §83, Prefiled Direct Testimony, March 30, 2012; testimony under cross-examination, August 2, 2012.

- **Pacific Gas and Electric Company**  
Before the *California Public Utilities Commission*, in the Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Ratemaking Mechanisms, Rulemaking 11-02-019, Rebuttal Testimony filed on February 28, 2012; testimony under cross-examination, March 20, 2012.
- **COMPETE Coalition**  
Before the *New Jersey Board of Public Utilities*, In the Matter, In the Matter of the Board's Investigation of Capacity Procurement and Transmission Planning, Docket No. EO11050309, October 14, 2011.
- **On her own behalf**  
Before the *U.S. House Energy and Commerce Committee*, Subcommittee on Energy and Power, EPA Regulations and Electric System Reliability, September 14, 2011.
- **On her own behalf**  
Before the *U.S. Senate Environment and Public Works Committee*, Subcommittee on Clean Air and Nuclear Safety, June 30, 2011, Oversight Hearing: Review of EPA Regulations Replacing the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR).
- **Exelon Corporation and Constellation Energy Group**  
Before the *Maryland Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Constellation Energy Group, Case No. 9271, prefiled direct testimony (May 25, 2011); rebuttal testimony (October 12, 2011), supplemental testimony (December 15, 2011), testimony under cross-examination (November 10, 2011, January 25, 2012).
- **New England Power Generators Association**  
Before the *Massachusetts Public Utilities Commission*, In the Matter of the Joint Petition for Approval of Merger [of Northeast Utilities and NSTAR] Pursuant to G.L. c. 164, § 96, Docket D.P.U. 10-170, prefiled direct testimony (May 20, 2011); testimony under cross-examination (July 15 and 18, 2011).
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Proposed General Increase in Electric Rates of Commonwealth Edison Company, Docket No. 10-0467, ComEd Exhibit 13.0, prefiled direct testimony (filed June 30, 2010); rebuttal testimony (filed November 22, 2010); surrebuttal testimony (filed January 2, 2011), testimony under cross-examination (January 18, 2011).
- **National Grid: Massachusetts Electric Company and Nantucket Electric Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Petition of Massachusetts Electric Company and Nantucket Electric Company each d/b/a National Grid for approval by the Department of Public Utilities of two long-term contracts to purchase wind power and renewable energy certificates, pursuant to G.L. c. 169, § 83 and 220 C.M.R. § 17.00 et seq. – Docket D.P.U. 10-54 (the Cape Wind contract proceeding), prefiled direct testimony (filed June 4, 2010), rebuttal testimony (filed September 1, 2010), testimony under cross examination (September 8, 13, 14, 23, 24, 2010).
- **National Grid: Boston Gas Company, Essex Gas Company, Colonial Gas Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. D.P.U. 10-55, prefiled direct testimony (filed April 16, 2010); testified under cross-examination, June 28–29, 2010.
- **National Grid: EnergyNorth Natural Gas, Inc., d/b/a National Grid NH**  
Before the *New Hampshire Public Utilities Commission*, Investigation as to the Propriety of Proposed Natural Gas Tariff Changes, Docket DG 10-017, prefiled direct testimony (filed February 26, 2010).
- **National Grid: Niagara Mohawk Power Corporation**

Before the *New York Public Service Commission*, Investigation as to the Propriety of Proposed Electric Tariff Changes, Docket No. 10-E-0050, prefiled direct testimony (filed January 29, 2009), rebuttal testimony (filed August 2010).

- **National Grid: Narragansett Electric Company**  
Before the *Rhode Island Public Utilities Commission*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. R.I.P.U.C. 4065, prefiled direct testimony (filed June 1, 2009; testimony under cross-examination, November 4, 2009).
- **National Grid: Massachusetts Electric Company and Nantucket Electric Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. D.P.U. 09-39, prefiled direct testimony (filed May 15, 2009; testimony under cross-examination, August 7 and 25, 2009, and September 8, 2009).
- **Amerada Hess Corp., et al.**  
Before the *District Court of the United States for the Southern District of New York*, on behalf of Amerada Hess Corp., et al., in *City of New York v. Amerada Hess Corp. et al.*, Case No. 1:00-1898, testimony in deposition, May 12, 2009.
- **State of North Carolina**  
Before the *District Court of the United States for the Western District of North Carolina*, on behalf of North Carolina in *State of North Carolina, ex rel. Roy Cooper, Attorney General, v. Tennessee Valley Authority*, Case No. 1:06CV20, testimony in deposition, May 17, 2007; testimony at July 22, 2008.
- **KeySpan Energy Delivery (National Grid)**  
Before the *Massachusetts Appellate Tax Board*, Boston Gas Company, d/b/a KeySpan Energy Delivery New England v. City of Boston, Docket No. F275055-F275056 (FY 2004), F279207-F279208 (FY 2005), F284088-F286194 (FY 2006), testimony and cross-examination, May 20–21, 28, June 4, 2008.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Proposed General Increase in Electric Rates of Commonwealth Edison Company, Docket No. 07-0566, ComEd Exhibit 18.0, prefiled rebuttal testimony (filed April 12, 2008).
- **Sierra Pacific Power Company**  
Before the *Public Utilities Commission of Nevada*, In the Matter of the Application of Sierra Pacific Power, filed pursuant to NRS 704.110(3), for authority to increase its general rates charged to all classes of electric customers to reflect an increase in annual revenue requirement, Docket No. 07-12 (filed December 3, 2007), Prefiled Direct Testimony; cross examination, April 17–18, 2008.
- **Amerada Hess Corp., et al.**  
Before the *District Court of the United States for the Southern District of New York*, on behalf of Amerada Hess Corp., et al., in *County of Suffolk and Suffolk County Water Authority v. Amerada Hess Corp. et al.*, Case No. 1:00-1898, testimony filed October 1, 2007.
- **Sempra Energy Company – San Diego Gas & Electric Company and SoCalGas Company**  
Before the *California Public Utility Commission*, Order Instituting Rulemaking to Examine the Commission’s post-2005 Energy Efficiency Policies, Programs, Evaluation, Measurement and Verification and Related Issues, Rulemaking Docket 06-04-010 (Filed April 13, 2006), testimony filed May 3, 2007, cross examination, May 29, 2007.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Rider CPP of Commonwealth Edison Company, and Rider MV of Central Illinois Light Company d/b/a AmerenCILCO, of Central Illinois Public Service Company d/b/a AmerenCIPS, and of Illinois Power Company d/b/a Ameren IP, pursuant to Commission Orders regarding the Illinois Auction, Docket No. 06-0800, testimony filed



April 6, 2007; cross-examination, April 24, 2007.

- **PECO Energy Company**  
Before the *Pennsylvania Public Utility Commission*, Petition of PECO for Approval of (1) a Process to Procure Alternative Energy Credits During the AEPS Banking Period, and (2) A Section 1307 Surcharge and Tariff to Recover AEPS Costs, Prefiled Direct Testimony, March 19, 2007.
- **Masspower**  
Before the *Superior Court Department of Suffolk County, Massachusetts*, *Massachusetts Municipal Wholesale Electric Company v. Masspower, et al.*, Civil No. 05-02710 (BLS1), on the changes in conditions in the electric industry in New England as they relate to Masspower's performance under its power supply agreement with MMWEC; Expert Report, September 11, 2006; oral testimony under cross examination at trial, October 16–17, 2006.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Proposed general increase in electric rates, general restructuring of rates, price unbundling of bundled service rates, and revision of other terms and conditions of service, Docket No. 05-0597, Rebuttal Testimony, January 30, 2006; Surrebuttal Testimony, March 14, 2006; oral testimony under cross-examination, March 23, 2006. Testimony on rehearing, September 20, 2006.
- **Commonwealth Edison Company**  
Before the *Illinois House of Representatives, Electric Utility Oversight Committee*, on the Pay-as-Bid versus Uniform Price Auction Approach To Procurement of Wholesale Power for ComEd's Full- Requirements Customers, January 18, 2006, Springfield, Illinois.
- **Louisville Gas & Electric Company and Kentucky Utilities Company**  
Before the *Kentucky Public Service Commission*, Application of LG&E and KU to transfer functional control of their transmission assets, Direct Testimony, November 19, 2005.
- **Western Massachusetts Electric Company**  
Before the *Superior Court Department of Norfolk County, Massachusetts*, *Alternative Power Source, Inc., v. Western Massachusetts Electric Company*, Civil Action No. 00-1967, on the allocation of costs related to transmission congestion in wholesale power contract for standard offer service. Expert Report, September 19, 2001; deposition, October 15, 2001; testimony at trial, July 15, 2005.
- **Entergy Louisiana, Inc. and Entergy Gulf States Inc.**  
Before the *Louisiana Public Service Commission*, Application of Entergy Louisiana, Inc. for Approval of the Purchase of Electric Generating Facilities and Entergy Gulf States, Inc. for Authority to Participate in Contract for the Purchase of Capacity and Electric Power, Docket No. U27836, January 21, 2005.
- **Louisville Gas & Electric Company and Kentucky Utilities Company**  
Before the *Kentucky Public Service Commission*, Investigation Into The Membership of Louisville Gas and Electric Company and Kentucky Utilities Company In The Midwest Independent Transmission System Operator, Inc., Case No. 2003-00266, September 29, 2004; Supplemental Rebuttal Testimony, January 10, 2005; testimony at hearing, June 2005.
- **Entergy Services Inc.**  
Before the *Federal Energy Regulatory Commission*, *Entergy Services Inc., et al.*, in support of the application for approval of market-based power purchase agreements under Section 205 of the Federal Power Act. Affidavit, February 28, 2003; Affidavit, March 31, 2003; Testimony, September 2003; Testimony at deposition, November 20, 2003; Rebuttal Testimony, May 11, 2004; Deposition, May 27, 2004, and June 10–11, 2004; Testimony under cross-examination, July 19–23, 26–27, 2004.
- **Pacific Gas & Electric Company**  
Before the *California Public Utilities Commission*, In Re: Order Instituting Investigation into the

ratemaking implications for Pacific Gas and Electric Company (PG&E) pursuant to the Commission's Alternative Plan of Reorganization under Chapter 11 of the Bankruptcy Code for PG&E, in the United States Bankruptcy Court, Northern District of California, San Francisco Division, In re Pacific Gas and Electric Company, Investigation 02-04-026, Pre-Filed Testimony, July 23, 2003, Testimony under cross-examination, September 12, 2003.

- **Entergy Louisiana, Inc.**  
Before the *Louisiana Public Service Commission, Entergy Service*, In Re: Application of Entergy Louisiana, Inc., for Authorization to Enter into Certain Contracts for the Purchase of Capacity and Energy, Docket No. U-27136, Rebuttal Testimony, April 25, 2003.
- **Pacific Gas and Electric Company/PG&E Corporation**  
Before the *Federal United States Bankruptcy Court, Northern District of California, San Francisco Division*, In Re: Pacific Gas and Electric Company, Debtor, Federal I.D. No. 94-0742640, on the public policy concerns raised by the proposed reorganization plan of PG&E Corporation. Expert report, November 8, 2002; rebuttal report, November 26, 2002.
- **PP&L Global**  
Before the *New York Public Service Commission, Article X Siting Board*, on the economic and environmental benefits of the Kings Park Energy power plant. Prefiled direct testimony, January 2002; rebuttal testimony, October 23, 2002.
- **Connecticut Light & Power Company**  
Before the *Federal United States District Court, District of Connecticut*, Connecticut Light & Power Company v. NRG Power Marketing Inc., on their standard offer service wholesale sales agreement. Expert report, August 30, 2002; deposition, September 27, 2002.
- **Pacific Gas and Electric Company/PG&E Corporation**  
Before the *Federal Energy Regulatory Commission*, in the Matter of Pacific Gas and Electric Company, PG&E Corporation, on behalf of its Subsidiaries Electric Generation LLC, ETrans LLC, and GTrans LLC, on the public benefits of the application seeking approval under Section 203 of the Federal Power Act and Section 12 of the Natural Gas Act for various actions relating to restructuring of the company to emerge from bankruptcy, November 30, 2001.
- **Cross-Sound Cable Company LLC**  
Before the *Connecticut Siting Council*, on the public benefits of the proposed Cross Sound Cable Project's Application for a Certificate of Environmental Compatibility and Public Need, Docket No. 208. Prepared direct testimony, July 23, 2001; oral testimony under cross-examination, October 24–26, 29–30, 2001.
- **Sithe New England (Sithe Edgar LLC, Sithe New Boston LLC, Sithe Framingham LLC, Sithe West Medway LLC, Sithe Mystic LLC)**  
Before the *Federal Energy Regulatory Commission*, in the Matter of NSTAR Electric & Gas Corp., v. Sithe Edgar LLC, Sithe New Boston LLC, Sithe Framingham LLC, Sithe West Medway LLC, Sithe Mystic LLC, and PG&E Energy Trading, Docket No. EL01-79-000. Affidavit comparing historical cost recovery by Boston Edison for its fossil generation units (pre-divestiture) under rate regulation, versus Sithe's revenue recovery for these same units (post-divestiture) under market prices, June 5, 2001.
- **NRG Energy Inc. and Dynegy Holdings Inc.**  
Before the *Public Utilities Commission of Nevada*, In Re: petition of the Attorney General's Bureau of Consumer Protection to issue an Order staying further proceedings regarding divestiture of Nevada's electric generation assets and to open a docket to consider whether to issue a moratorium on divestiture in Nevada. Supplemental prepared direct testimony on behalf of Valmy Power LLC, April 6, 2001; testimony under cross-examination.

Before the *Public Utilities Commission of Nevada*, In Re: petition of the Attorney General's Bureau of Consumer Protection to issue an Order staying further proceedings regarding divestiture of Nevada's

electric generation assets and to open a docket to consider whether to issue a moratorium on divestiture in Nevada, prepared direct testimony on behalf of Reid Gardner Power LLC and Clark Power LLC, April 3, 2001; testimony under cross-examination.

- **Sithe New England, LLC**

Before the *Federal Energy Regulatory Commission*, In the Matter of Maine Public Utilities Commission and The United Illuminating Company v. ISO New England, Inc., affidavit on the role of price “spikes” in compensating generators for the services that they provide in the region, September 7, 2000.

- **Arkansas Electric Distribution Cooperatives**

Before the *Arkansas Public Service Commission*, In the Matter of a Generic Proceeding to Establish Uniform Policies and Guidelines for a Standard Service Package. Prepared joint reply testimony (with Janet Gail Besser), July 21, 2000; prepared joint surreply testimony (with Janet Besser), August 3, 2000.

- **TransEnergie U.S.**

Before the *Connecticut Siting Council*, on the public benefits of the proposed Cross Sound Cable Project. Expert report, July, 2000; prepared direct testimony, September 20, 2000; oral testimony, September 27, 2000; supplemental written testimony, December 7, 2000; oral testimony under cross-examination, December 14, 2000; oral testimony January 9–11, 2001.

- **SCS Energy Corp.**

Before the *New York State Public Service Commission*, on the economic and environmental impact of a new combined cycle power plant in Queens, NY, June 19, 2000.

- **Reading Municipal Light Department**

Before the *Massachusetts Energy Facilities Siting Board*, Docket No. EFSB 97-4, on the economics and need for a new natural gas pipeline, June 19, 2000; testimony under cross-examination September 19, 2000, September 21–22, 2000, October 5, 2000, and October 17, 2000.

- **Fitchburg Gas and Electric Light Company**

Before the *Massachusetts Department of Telecommunications and Energy*, Docket D.T.E. 99-66, on gas and electric company rate design policy, testimony under cross-examination, January 14, 2000.

- **FirstEnergy Corp.**

Before the *Public Utilities Commission of Ohio*, In the Matter of the Application of FirstEnergy Corp. on behalf of Ohio Edison Company, the Toledo Edison Company, and The Cleveland Electric Illuminating Company: for Approval of an Electric Transition Plan and for Authorization to Recover Transition Revenues (Case No. 99-1212-EL-ETP); for Approval of New Tariffs (Case No. 99-1213-EL-ATA); for Certain Accounting Authority (Case No. 99-1214-EL-AAM), on recovery of transition costs and calculation of the market value of generation assets. Joint testimony (with Dr. Scott Jones), December 22, 1999; supplemental testimony (with Dr. Scott T. Jones), April 4, 2000; deposition, April 7, 2000.

- **Sithe New England, LLC**

Before the *Massachusetts Energy Facilities Siting Board*, Docket EFSB 98-10, in support of an application to construct a 540 MW gas-fired single cycle peaking power plant in Medway, Massachusetts. Prepared direct testimony, April 1999; oral testimony under cross-examination, July 27, 1999.

- **Village of Bergen, et al.**

Before the *Supreme Court of the State of New York*, Index No. 081556, Affidavit in Response to Defendant's Submission of February 25, 1999, in Village of Bergen, et al., Plaintiffs, v. Power Authority of the State of New York, Defendant, March 3, 1999.

Before the *Supreme Court of the State of New York*, Index No. 081556, Affidavit in Support of Petition to Correct Rates, in Village of Bergen, et al., Plaintiffs, v. Power Authority of the State of New York, Defendant, October 17, 1996.

- **Sithe New England, LLC**

Before the *Massachusetts Energy Facilities Siting Board*, Docket EFSB 98-7, in support of an application to construct a 750 MW gas-fired combined cycle power plant at the Fore River Station in Weymouth, Massachusetts (Edgar). Prepared direct testimony, February 10, 1999; oral testimony under cross-examination, July 26, 1999.

- **Sithe New England, LLC**

Before the *Massachusetts Energy Facilities Siting Board*, Docket EFSB 98-8, in support of an application to construct a 1500 MW gas-fired combined cycle power plant at the Mystic Station in Everett, Massachusetts. Prepared direct testimony, February 10, 1999; oral testimony under cross-examination, May 25, June 2, 1999.

- **U.S. Generating Company**

Before the *Connecticut Siting Board*, Docket No. 189, on an application to construct a new Lake Road Generating Project, September 1998. Oral testimony under cross-examination.

- **Central Hudson Gas & Electric Corporation**

Before the *Supreme Court of New York*, Index No. 255/1998, CHGE v. West Delaware Hydro Associates, on issues relating to ratemaking treatment of costs relating to power contracts, April 13, 1998.

- **Sithe New England Holdings, LLC**

Before the *Massachusetts Department of Telecommunications and Energy and the Massachusetts Energy Facilities Siting Board*, Docket Nos. DTE98-84 and EFSB98-5, on issues pertinent to forecast and supply planning by electric companies, September 14, 1998.

- **Sithe Energies, Inc.**

Before the *Massachusetts Energy Facilities Siting Board*, Docket No. EFSB98-3, on issues related to the agency's rulemaking establishing a Technology Performance Standard, June 8, 1998.

Before the *Massachusetts Energy Facilities Siting Board*, Docket No. EFSB98-1, on issues related to the agency's review of project viability as part of review of power plant applications, March 16, 1998.

- **Pennsylvania Power & Light**

Rebuttal testimony on codes of conduct governing affiliate relations. *Pennsylvania Public Utility Commission*, Docket Nos. A-122050F0003, A-120650F0006, testimony under cross-examination, February 17, 1998.

Rebuttal testimony on rate unbundling and rate design issues, on consumer protection issues. *Pennsylvania Public Utility Commission*, Docket No. R-00973954, testimony under cross-examination, August 5, 1997.

Before the *Penn Public Utility Commission*, Docket No. R-00973954, on rate design, April 1, 1997.

- **Nextel Communications**

Before the *Massachusetts Department of Public Utilities*, Docket 95-59-B, on telecommunications facility matters, testimony under cross-examination, January 1997.

- **Arizona Public Service Company**

Before the *Arizona Corporation Commission*, Docket No. U-0000-95-506, on integrated resource planning and competition, October 1996.

- **U.S. Generating Company**

Before the *Massachusetts Energy Facilities Siting Board*, Docket 96-4, on an application to construct a new Millennium power generating facility, testimony under cross-examination, October 1996.

- **MCI Communications, Inc.**

Before the *Massachusetts Department of Public Utilities*, in the NYNEX interconnection docket. Opening up the Local Exchange Market to Competition: Common Themes with Retail Competition in Electricity and Natural Gas Industries, August 30, 1996.

- **Intercontinental Energy Corporation**

Before the *New Jersey Board of Public Utilities*, No. EX94120585Y, on the Energy Master Plan Phase I Proceeding to Investigate the Future Structure of the Electric Power Industry, July 1996.

Before the *Massachusetts Department of Public Utilities*, DPU 96-100, on the Investigation Commencing a Notice of Inquiry/Rulemaking for Electric Industry Restructuring, July 1996.

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"State Electric Industry Policies and Organized Wholesale Electricity Markets," Presentation to the NYISO Environmental Advisory Council, Albany, NY, November 4, 2016.

"Existing nuclear units and potential policy solutions: Approaches in other states beyond Illinois," Chicago, IL, October 18, 2016.

"Existing Nuclear Units – and New York's Clean Energy Standard," presentation to the NARUC Energy Resources and the Environment Committee – Monthly Conference Call, September 16, 2016.

"Understanding the Evolving Trends in the Eastern Interconnect: Implications for Environmental Policies & Investments," Duke Nicholas Institute for Environmental Policy Solutions/Great Plains Institute/Bipartisan Policy Center, I, Atlanta, September 13, 2016.

"What does the U.S. need to do to meet its climate goals? Why Nuclear? How Much and How Fast?" Aspen Institute Forum on the Future of Nuclear Energy, Aspen, August 10, 2016.

Testimony of Susan F. Tierney, Ph.D. Before the Democratic Platform Committee, U.S. Progress on Clean Energy Policy, Phoenix, June 17, 2016.

"Value of 'DER' to 'D': The Role of Distributed Energy Resources in Local Electric Distribution System Reliability," presentation to the MidAtlantic Conference of Regulatory Utility Commissioners (MACRUC), Williamsburg, VA, June 21, 2016.

"How does New Jersey Achieve a Low-Carbon Future?" New Jersey Spotlight conference, Trenton, NJ, June 3, 2016.

"Potential federal and state actions that could help address financial risks facing many existing nuclear power plants," U.S. Department of Energy's Summit on Improving the Economics of America's Nuclear Power Plants, Washington, D.C., May 19, 2016.

"New England's Electricity 'Restructuring': Successes, disappointments, and what's next," 150th meeting of the New England Electricity Restructuring Roundtable, Boston, MA, May 18, 2016.

"Clearing the Way: Pioneering New York's Clean Energy Standard," Albany, NY, May 11, 2016.

"Electricity markets in transition," Annual Energy Summit of Columbia University's Center for Global Energy Policy, New York, NY, April 27, 2016.

"Value of 'DER' to 'D': The Role of Distributed Energy Resources in Local Electric Distribution System Reliability," California Public Utility Commission's "Thought Leaders Forum," April 21, 2016.



"Transforming Power Systems: Challenges and Solutions," Annual meeting of the Joint Institute for Strategic Energy Analysis, NREL, Golden, CO, March 31, 2016.

"Background and Context: Eras of Electric Utility Industry (in 5 Minutes!)," New Orleans City Council/Entergy New Orleans Electricity Symposium, March 22, 2016.

"Affordability, Cost Containment, and Economic Development: Complying with the Clean Power Plan," 3-N meeting (NARUC, NASEO, NACAA) on How State Agencies Are Working Together, Washington D.C., February 11, 2016.

"Evaluating Clean Power Plan Pathways in a Dynamic Electricity Sector," Conference on Navigating the EPA's Clean Power Plan: Charting a Course for the Southeast, sponsored by Duke University Nicholas Institute for the Environment, Orlando, January 28, 2016.

NASEO/DOE/EIA, "2015 – 2016 Winter Energy Outlook Conference," National Press Club, Washington, D.C., October 6, 2015.

"Outlook for Energy," Clinton Foundation Global Initiative, New York, NY, September 28, 2015.

"Reactions to the Clean Power Plan," NARUC Electricity Committee, Arlington, VA, August 14, 2015.

"Trends in national climate policy," Institute for Sustainable Cities, June 18, 2015.

"EPA's Clean Power Plan and its potential effects on system reliability," Mid-American Regulatory Commissioners (MARC) Conference, Milwaukee, June 8, 2015.

"Proposed Reliability Mechanisms for the Clean Power Plan," Bipartisan Policy Center Workshop, National Press Club, Washington D.C., May 9, 2015.

"EPA's Proposed Clean Power Plan: Testing the tires, looking under the hood... How far does it take us toward a clean, modern electric system?" Cornell University, Ithaca, NY, November 2014.

"Readying States for New Greenhouse Gas Rules in the Electricity Sector," National Governors Association – Workshop for Governors' Energy Advisors, Washington, D.C., September 22, 2014,

"Natural Gas and Renewable Energy Synergies: Challenges and Opportunities," North American Energy Standards Board (NAESB), Board Meeting, Houston, September 10, 2014.

"America's Electricity Evolution: New Policies, Regulations, and Technologies Converging to Change the Future of Power Production and Use," 2014 NASEO Annual Meeting, Savannah, September 2014.

"Implications for Energy, Economy, and Environment Under the Proposal," Environmental Council of the States (ECOS), Washington D.C., July 31, 2014.

"Regional Options and Strategic Choices," NARUC Workshop on Regional Compliance Options for Sec. 111d, Washington D.C., July 28, 2014.

"111d in Big D: Compliance Options, Regional Approaches, and Where We Go from Here," NARUC, Dallas, July 16, 2014.

"The National Climate Assessment: What Risks Lie Ahead for the Energy Sector?" NARUC, Dallas, July 14, 2014.

"The EPA's new Clean Power Plan proposal: Some suggestions for state action now," National Association of Clean Air Agencies, Washington, D.C., July 13, 2014.

"Changing electric industry dynamics: The role of regulation," Aspen Institute Energy Policy Forum: Electricity Structure and Regulation, July 7, 2014.

"Natural Gas and Renewable Energy Synergies: Challenges and Opportunities," Synergies of Natural Gas and Renewable Energy: 360 Degrees of Opportunity, Center for the New Energy Economy (CNEE), Joint Institute for Strategic Energy Analysis (JISEA), Gas Technology Institute (GTI), Bloomberg New Energy Finance, New York, NY, July 1, 2014.

“EPA’s Clean Power Plan,” Bipartisan Policy Center, June 18, 2014.

“GHG Emission Reductions From Existing Power Plants Under Section 111(d) of the Clean Air Act: Options to Ensure Electric System Reliability,” Electricity Advisory Committee, U.S. Department of Energy, May 8, 2014.

“Climate Solutions: The role of existing nuclear power,” Center for Climate and Energy Solutions, Washington, D.C., April 28, 2014.

“Electric Power Systems: The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit,” Harvard Law School, March 20, 2014.

**SERVICE ON BOARDS OF DIRECTORS (PUBLIC COMPANIES, PRIVATE COMPANIES, NON-  
GOVERNMENTAL ORGANIZATIONS)**

Chair, National Academies’ Board on Energy and Environmental Systems (2023-Present); Member of the Board (2022-Present).

Chair, Resources for the Future Board of Directors (2018–Present); Member of the Board (2014–Present)

Chair, Alfred P. Sloan Foundation (2025-present); Trustee (2022-present)

Trustee, Barr Foundation (2016–Present)

Member, Climate Leadership Initiative, Board of Directors (2022-present), Advisory Board (2019–2022)

Chair, ClimateWorks Foundation Board of Directors (2013–2022)

Member and Vice-Chair, World Resources Institute Board of Directors (2009–2025)

Chair, Energy Foundation Board of Directors (2000– 2011); Vice-Chair (1999–2000); Director (1997–2011); Director (2013–2022, 2023-present)

Member, Coalition for Green Capital, Board of Directors (2021-present)

Member, Keystone Center Energy Board (2016–2024)

Member, Keystone Center Board of Trustees (2016–2019)

Member, Alliance to Save Energy Board of Directors (2011–2018)

Member, EnerNOC, Inc. Board of Directors (February 2010–May 2013)

Member, Evergreen Solar, Inc. Board of Directors, 2008–2011)

Member, Ze-gen Inc. Board of Directors, 2009–2011)

Member, Renegy Holdings Board of Directors, 2007–2009)

Member, Clean Air Task Force Board of Directors, 2008–2013)

Member, Catalytica Energy Systems Inc. Board of Directors (2001–2007)

Member, Climate Policy Center Board of Directors (2001–2007)

Member, NorthEast States Center for a Clean Air Future, Board of Directors (1998–2010)

Chair, Clean Air–Cool Planet / Climate Policy Center Board of Directors (2004–2009); Director (1999–2014)

Member, ACORE (American Council on Renewable Energy) Board of Directors (2006–2007)

Member, Electric Power Research Institute (EPRI) Board of Directors (1998–2003, 2005–2006)

Chair, Electricity Innovations Institute, Board of Directors, (2002–2004); Director (2001–2002)

Director, The Randers Group (subsidiary of Thermo TERRATEK) Board of Directors (1997–2000)

Director, Thermo ECOTEK Corporation Board of Directors (1996–1999)

## OTHER PROFESSIONAL ACTIVITIES

Member, Oversight Committee of the Washington State Academy of Sciences' study on the economic value of distributed solar power generation and solar in Washington State (2025)

Member, Advisory Group to the Pew Charitable Trusts Initiative on Distributed Energy Resources (2025)

Member, Committee on Accelerating Decarbonization in the United States: Technology, Policy and Social Dimensions, National Academies of Sciences, Engineering & Medicine (2020-2023)

Member, Climate Crossroads Advisory Committee, National Academies of Sciences, Engineering & Medicine (2022-present)

Member, Committee on Net Metering, National Academies of Sciences, Engineering & Medicine (2021-2023)

Member, Committee on the Modernization of the Electric Grid, National Academies of Sciences, Engineering & Medicine, Climate Communications Initiative (2019-2021)

Member, Advisory Committee of the National Academy of Sciences, Engineering & Medicine, Climate Communications Initiative (2018-2023)

Co-chair, National American Energy Standards Board (NAESB) Gas-Electric Harmonization Committee (2012, 2014, 2022-2024)

Chair, External Advisory Council, National Renewables Energy Laboratory (2009–2024); Member (2024-present)

Member, Columbia University, Center for Global Energy Policy (2014–2018, 2020-2023)

Member, Institute for Policy Integrity, New York University School of Law (2017-Present)

Member, New York Independent System Operator, Environmental/Advisory Council (2004–2025)

Member, Technical Review Panels at National Renewable Energy Laboratory: Member, Energy Systems Integration TRP (2021-2023); Chair, Computational Sciences and Energy Analysis TRP (2018-2021); Chair, Energy Analysis TRP (2009-2018).

Visiting Fellow in Policy Practice at the Energy Policy Institute at the University of Chicago (2017–2018)

Chair and Member, Electricity Advisory Committee (Department of Energy) (2015–2017)

Member, National Academy of Sciences Committee on Enhancing the Resiliency of the Nation's Electric Power Transmission and Distribution System (2015–2017)

Chair, Aspen Institute Energy Policy Forum (2015)

Member, Innovation Review Panel, "51st State" Initiative of the Solar Electric Power Association (2015)

Chair, External Review Panel for the Clean Energy Ministerial (2015)

Chair, Aspen Institute Energy Policy Forum (2014)

Participant in studies of the Colorado State University's Center for Clean Energy Economy ("*Powering Forward: Presidential and Executive Agency Actions to Drive Clean Energy in America*") (January 2014)

Co-Lead Convening Author, Energy Supply and Use Chapter, National Climate Assessment (2012–2014)

Member, Committee on Risk Management and Government Issues in Shale Gas Development, of the National Academy of Sciences, Board on Environmental Change and Society (of the Division of Behavioral and Social Sciences and Education) (2013–2014)

Co-chair, Bipartisan Policy Center's Cyber-security and the Electric Grid project (2013–2014)

Alliance Commission on National Energy Efficiency Policy (2012–2013): Report "Energy 2030: Doubling Energy Productivity by 2030" (February 2013)

Bipartisan Policy Center – Energy Project (2011–Present): Report (“America’s Energy Resurgence: Sustaining Success, Confronting Challenges” (February 2013)

U.S. Secretary of Energy Advisory Board (July 2010–May 2013). Member of the Natural Gas Subcommittee examining shale gas development. (2011–2013)

Chair, Policy Subgroup of the National Petroleum Council’s study on North American Gas and Oil Resource Development (2010–2011)

Visiting Professor, Department of Urban Studies & Planning, Massachusetts Institute of Technology (Spring 2010)

Massachusetts Clean Energy Grand Prize Judge (2010)

World Resources Institute: Chair of Presidential Search Committee (2011)

Co-Lead, Department of Energy Agency Review Team, Obama/Biden Presidential Transition Team, Washington D.C., while on full-time leave for four months from Analysis Group (2008–2009)

Chair, Massachusetts Ocean Advisory Commission (2008–2010)

Member, Blue Ribbon Commission on Cost-Allocation Issues for Transmission Investment, WIRES (2007)

Member, National Academy of Sciences Committee on Enhancing the Robustness and Resilience of Electrical Transmission and Distribution in the United States to Terrorist Attack (2005–2008)

Member, National Commission on Energy Policy, Member (2002–2011); Co-chair (2009–2011)

Member, Advisory Committee, Carnegie Mellon Electricity Industry Center (2001–2009)

Member, Policy Advisory Committee, China Sustainable Energy Project–A Joint Project of The Packard Foundation and The Energy Foundation (1999–2014)

Co-Chair, Energy/Environment Working Group, Governor Deval Patrick Transition Team (2006–2007)

Presenter, Economic Issues, National LNG Forums, U.S. Department of Energy, Boston Massachusetts; Astoria, Oregon (2006)

Chair of the Technical Review Panel, Critical Infrastructure Protection Decision Support Systems (CIP- DSS), Argonne, Los Alamos and Sandia National Laboratories (2006)

Advisory Council member, New England Energy Alliance (2005–2006)

Chair of the Laboratory Direction’s Division Review Panel for Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory (2005)

Chair, Ocean Management Task Force, Commonwealth of Massachusetts (2003–2004)

Co-Chair, RTO Futures: Regional Power Working Group (2001–2002)

Member, Florida Energy 2020 Study Commission, Environmental Technical Advisory Committee (2001)

Technical Advisor, Mid-Atlantic Area Council/PJM, Dispute Resolution Procedure (1998–2008)

Member, “ISO-New England” (Independent System Operator) Advisory Committee (1998–2003)

Member, United States Department of Energy, Electricity Reliability Task Force (1996–1998)

Member, Harvard Electricity Policy Group (1993–2005)

## **HONORS AND AWARDS**

Lifetime National Associate of the National Research Council of the National Academies of Sciences, Engineering and Medicine (January 2020)

Mary Kilmarx Award for lifetime work on good government, clean energy and the environment, presented by NARUC’s Committee on Energy Resources and the Environment (November 2015)

Lifetime Achievement Award, U.S. Department of Energy/MIT/Clean Energy Ministerial C3E (CleanEnergy

Education & Empowerment) Initiative (2014)

Champions Award, Charles River Watershed Association (2013)

Leadership Award, New England Women in Energy and the Environment (2013)

Clean Energy Hall of Fame, New England Clean Energy Council (2012)

DOE Women in Clean Energy Initiative, C3 Ambassador (2012)

Climate Champion Award, Clean Air – Cool Planet (2009)

Distinguished Alumna Award, Scripps College, Claremont, CA (1998)

Award for Individual Leadership in Public Service, *The Energy Daily* (1995)

Special Recognition Award, Outstanding Contribution to the Industry, Assn of Energy Engineers (1994)

Leadership Award, National Association of State Energy Officials (1994)

Commencement Speaker and Honorary Doctorate of Laws, Regis College, Weston, MA (1992)

## **RESUMEN DE: DECLARACIÓN DE SUSAN TIERNEY**

Contabilizar el coste de la deuda es fundamental. El uso habitual del efectivo procedente de las operaciones como fuente de fondos para invertir en activos de larga duración y capital intensivo es incompatible con los principios de eficiencia, equidad intergeneracional y servicio adecuado a tarifas justas y razonables que rigen la fijación de tarifas. Cuando los reguladores establecen requisitos de ingresos que tienen debidamente en cuenta los costes de la deuda, los clientes se benefician porque la empresa de servicios públicos puede mantener la estabilidad financiera, atraer capital en condiciones razonables y evitar imponer a la base de clientes actual los elevados costes iniciales asociados a las inversiones de capital financiadas con efectivo en activos con una larga vida útil.

El uso de una cláusula adicional con un marcador de posición para la recuperación de la deuda heredada en las tarifas es una forma eficaz de gestionar la inclusión de las obligaciones del servicio de la deuda una vez que se haya determinado el importe que se debe reembolsar a los tenedores de bonos de la AEE. La aprobación de una cláusula adicional sobre la deuda heredada en este caso de tarifas es importante porque permitirá a la empresa de servicios públicos comenzar a recaudar fondos para realizar los pagos de la deuda heredada de una manera más eficiente y rápida una vez que se resuelva el tratamiento de la deuda heredada de la AEE.

La inclusión por parte de LUMA de una cantidad propuesta de fondos para respaldar un índice de cobertura del servicio de la deuda (DSCR) como parte de las tarifas es inadecuada si el margen propuesto por LUMA está diseñado para cubrir un DSCR para el

reembolso de deuda futura aún no emitida, pero el margen propuesto se calcula sobre la base de un nivel supuesto de deuda heredada. La inclusión de ese importe específico del DSCR no se explica y es incompatible con el coste del servicio propuesto, que no incluye obligaciones de deuda futuras no programadas. No se debe hacer recaer sobre los clientes costes adicionales vinculados a necesidades de financiación futuras inciertas o especulativas.

Estoy de acuerdo con las medidas adoptadas hasta la fecha por el Negociado de Energía (NEPR) para abordar las cuestiones relacionadas con la asequibilidad. El análisis explícito de la «asequibilidad» suele entrar en la fijación de tarifas de los servicios públicos solo en las fases de asignación de costes y diseño de tarifas, y no a la hora de determinar la cantidad de ingresos que necesita una empresa de servicios públicos para cubrir sus gastos en la fase de requisitos de ingresos. El NEPR ya ha aplicado estos principios ampliamente aceptados en este procedimiento, durante la fase de tarifas provisionales, asegurándose de que los gastos que impulsaban los requisitos de ingresos se limitaran a aquellos que eran verdaderamente necesarios y prudentes, y luego reasignando algunos de los requisitos de ingresos que de otro modo se asignarían a algunas clases de clientes a otras clases de clientes, con el fin de reducir la carga sobre ciertos segmentos de la población.