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MISSOURI PUBLIC SERVICE COMMISSION

FILE EM-2018-0012

REBUTTAL TESTIMONY

OF

KARL R. RÁBAGO

ON BEHALF OF

RENEW MISSOURI

January 16, 2018

I. INTRODUCTION AND RECOMMENDATIONS

Q. Please state your name and business address.

A. My name is Karl R. Rábago. My business address is 78 N. Broadway, E-House, White Plains, New York.

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

A. I am the executive director of the Pace Energy and Climate Center ("Pace"), a project of the Pace University Elisabeth Haub School of Law.

Q. On whose behalf are you appearing in this proceeding?

A. I am appearing on behalf of Renew Missouri Advocates ("Renew Missouri").

Q. What is the Pace Energy and Climate Center?

A. Pace Energy and Climate Center ("Pace") is a project of the Elisabeth Haub School of Law at Pace University. Pace's offices are located in White Plains, NY. As a non-partisan, legal and policy think tank, Pace develops cost-effective solutions to complex energy and climate challenges, seeking to positively transform the way society supplies and consumes energy. For more than twenty-five years, Pace has been providing legal, policy, and stakeholder engagement leadership in New York, the Northeast, and other jurisdictions. Located on the campus of the Elisabeth Haub School of Law, Pace engages and leverages a strong legal faculty and student body in its work, particularly through the internationally recognized Environmental Law Program and the Pace Land Use Law Center. Pace has many years of success in working with and supporting the New York State Energy Research and Development Authority, the New York Public Service Commission ("NYPSC"), and the New York Department of Environmental Conservation. Pace's work also includes strategic engagement with state legislative and

executive officials, as well as in key NYPSC Commission proceedings. In these capacities, Pace has had the opportunity to form long-lasting partnerships within the community of non-governmental organizations that work in the field of energy. Pace is actively involved in the New York Reforming the Energy Vision ("NY REV") process, and in grid modernization processes in Maryland, Massachusetts, and other states.

Q. Has Pace been involved in any other proceedings before the Missouri Public Service Commission ("Commission" or "MPSC")?

A. Yes. Pace has supported Renew Missouri in its participation in the Commission's Working Case to Explore Emerging Issues in Utility Regulation under File EW-2017-0245. This support has included writing comments and my participation in the Commission's workshop on January 9, 2018.

Q. Please describe your professional background and experience.

A. I have more than 25 years' experience in electric utility regulation, the electricity business, technology development, and markets. I am an attorney with degrees from Texas A&M University and the University of Texas School of Law, and post-doctorate degrees in military law and environmental law from the U.S. Army Judge Advocate General's School and Elizabeth Haub School of Law, respectively. Of note, my previous employment experience includes serving as a Commissioner on the Public Utility Commission of Texas, Deputy Assistant Secretary of Energy with the U.S. Department of Energy, Vice President at Austin Energy, and Director of Regulatory Affairs with the AES Corporation. I am also principal of Rábago Energy LLC, a consulting practice operating in New York. A detailed resume is annexed hereto as Exhibit KRR-1.

Q. Have you previously testified before this or any other regulatory commission?

A. I have appeared in several proceedings before the Commission, in my capacity as principle of Rábago Energy LLC, and as executive director of Pace. In the past five years, I have also submitted testimony, comments, or presentations in proceedings in New Hampshire, Virginia, New York, Hawaii, Iowa, Indiana, Ohio, Rhode Island, Georgia, Massachusetts, Minnesota, Michigan, Missouri, Louisiana, North Carolina, Kentucky, Arizona, Wisconsin, Vermont, California, Arkansas, Maine, Connecticut, Florida, Puerto Rico, California, Pennsylvania, and the District of Columbia. A listing of my recent previous testimony is annexed hereto as Exhibit KRR-2.

Q. Do you have any prior experience with utility mergers?

A. Yes. As a public utility commissioner in Texas, I made record decisions in the merger/acquisition of Gulf States Utilities by Entergy. I testified on behalf of the State of Hawaii Department of Business, Economic Development, and Tourism in the failed acquisition attempt of Hawaii Electric by NextEra. In addition, Pace has been supporting a group of not-for-profit organizations in Maryland in the Maryland Public Service Commission's docket PC-44, a generic proceeding relating to the "Utility of the Future."

Q. What materials did you review in preparing this testimony?

A. I reviewed the application by Great Plains Energy along with prefiled testimony, in both Missouri and Kansas.[1] I have reviewed the discovery requests and responses, Commission orders in other cases, and other materials related or relevant to this proceeding.

[1] Kansas Corporation Commission, Docket No. 18-KCPE-095-MER, In the Matter of the Application of Great Plains Energy Incorporated, Kansas City Power & Light Company and Westar Energy, Inc. for Approval of the Merger of Westar Energy, Inc. and Great Plains Energy Incorporated.

Q. What is the purpose of your testimony in this proceeding?

A. On behalf of Renew Missouri, I will present my opinion on the overall merits of the Application for merger approval, the conclusions that I draw from review of that Application, and my recommendations to the Commission on its disposition of the merger Application.

Q. Please summarize your testimony.

A. In this testimony, I draw on my experience with large utility mergers as a commissioner and expert to explain how the many complex tasks associated with transition and integration create additional costs and burdens, and consume significant human and other resources that would otherwise be directed to the efficient generation, sale, and distribution of electricity. That is, the normal course of activities associated with complex and difficult mergers ensures a significant risk of a merger process that is detrimental to the public interest. I explain how merger applications frequently promise that these costs and burdens will be overcome by savings associated with efficiencies and increased company scale, but that in the absence of firm merger commitments to back those promises, there is an inadequate basis for finding that the merger will not be detrimental to the public interest. I find that the merger Application is deficient in commitments and obligations relating to clean energy development, and that the Application must be enhanced with firm merger commitments that ensure that the Application meets the Missouri Merger Standard.

Q. What recommendations do you offer to the Commission in this proceeding?

A. My ultimate recommendation to the Commission is that it condition any approval of the proposed merger on various measures designed to maximize the likelihood that the outcome of the merger is not a detriment to the public interest.

II. THE COMMISSION'S STANDARD FOR MERGER APPROVAL

Q. What is your understanding of the Commission's authority and standard of review relating to the merger application?

A. The Commission has broad authority to regulate the activities of organizations and individuals involved in the manufacture, sale, or distribution of electricity. Missouri Revised Statutes § 386.250, titled "Jurisdiction of commission," provides that:

> *The jurisdiction, supervision, powers and duties of the public service commission herein created and established shall extend under this chapter:*
>
> *(1) To the manufacture, sale or distribution of gas, natural and artificial, and electricity for light, heat and power, within the state, and to persons or corporations owning, leasing, operating or controlling the same; and to gas and electric plants, and to persons or corporations owning, leasing, operating or controlling the same; . . .*[2]

Pursuant to this authority, the Commission has promulgated 4 CSR 240-3.115, entitled "Filing Requirements for Electric Utility Applications for Authority to Merge or Consolidate," which provides:

> *PURPOSE: Applications to the commission for the authority to merge or consolidate must meet the requirements set forth in this rule. As noted in the rule,*

[2] MO Rev. Stat. § 386.250 (2016).

additional requirements pertaining to such applications are set forth in 4 CSR 240-2.060(1).

(1) In addition to the requirements of 4 CSR 240-2.060(1), applications for authority to merge or consolidate shall include:

(A) A copy of the proposed plan and agreement of corporate merger and consolidation, including organizational charts depicting the relationship of the merging entities before and after the transaction;

(B) A certified copy of the resolution of the board of directors of each applicant authorizing the proposed merger and consolidation;

(C) The balance sheets and income statements of each applicant and a balance sheet and income statement of the surviving corporation;

(D) The reasons the proposed merger is not detrimental to the public interest;

(E) An estimate of the impact of the merger on the company's Missouri jurisdictional operations relative to the merger and acquisition in question; and

(F) A statement of the impact, if any, the merger or consolidation will have on the tax revenues of the political subdivision in which any structures, facilities or equipment of the companies involved are located.

(2) If the purchaser is not subject to the jurisdiction of the commission, but will be subject to the commission's jurisdiction after the sale, the purchaser must comply with these rules.

(3) If any of the items required under this rule are unavailable at the time the application is filed, they shall be furnished prior to the granting of the authority sought.

AUTHORITY: section 386.250, RSMo 2000. Original rule filed Aug. 16, 2002, effective April 30, 2003.*

Therefore, in my opinion, the critical Commission finding that is prerequisite to approval of the application is that the proposed merger "is *no*t detrimental to the public interest"[3] (emphasis added). For the remainder of this testimony, I shall refer to this as the Missouri Merger Standard.

Q. In your experience and opinion, does the Missouri Merger Standard establish a rigorous standard for evaluation of a merger application?

A. Yes. Although the wording of the Missouri Merger Standard is elegantly simple, in practice it represents a very rigorous standard for review.[4]

Q. Please explain what you mean about how the standard would operate in practice.

A. Mergers at any scale are complex transactions, involving business practices, regulatory processes, human relations issues, contracting issues, and corporate culture issues. They consume the attention of management and staff for years before and after the official date of any regulatory approval order. They consume immense amounts of very real costs, against planned, sometimes contingent future benefits.

[3] 4 CSR 240-3.115(1)(D).

[4] "The public detriment standard is higher than the "for good-cause" showing required before the granting of a variance from a Commission rule." Midwest Energy Consumers Group v. Great Plains Energy, Inc., Report and Order of the Missouri Public Service Com'n, EC-2017-0107, at p. 20 (Issue date Feb. 22, 2017, Effective Date Mar. 4, 2017)

Q. How do these characteristics of a merger change when the parties are very large utilities from different jurisdictions, as is the case in this proceeding?

A. The application in this proceeding proposes to create a combined company that would control 13 gigawatts of generation capacity, 10,000 miles of transmission, and more than 50,000 miles of distribution wires. It would be responsible for providing safe, reliable, and cost-effective electricity supply for more than 1.5 million customers in two states.[5] A merger of large companies spanning multiple jurisdictions involves even more work and cost, more complexity, and more risk that projected benefits will not be realized. Effective integration of such large enterprises requires, in my experience, several years before the business is operating at the pre-merger level of efficiency, and as many as five years before the combined company is performing at the anticipated levels of operational efficiency. Not unreasonably, the Applicants project transition costs out to the year 2022.[6]

Q. Many of the merger conditions in the application span a period of two or three years; others are longer, and some have no time element. Is that enough time to successfully gauge whether the merger is detrimental to the public interest?

A. The Applicants' proffered Merger Commitments and Standards are set out in Appendix H of the Application. From a strictly empirical basis, two or three years is not enough time to know whether the merger will achieve its intended results. After two years, the data will provide strong indications of whether the combined company is heading on the right track. The relatively simple structure of the underlying financial transaction in this case is

[5] Application at 9.
[6] KCP&L Integration Process and Efficiencies Overview, provided during webinar conducted by Applicants at slide 26.

positive—meaning that more complex and risky financial transactions are not necessary.[7] Still, there are many ways in which the merger partners can lose ground during the integration period. The five years of tracking that the Applicants have developed represents a reasonable time frame for measuring the achievement of efficiencies.[8] However, it should be noticed that the further in the future that efficiencies are anticipated, the more likely it is that they will be impacted by changes in market, economic, climate, and other conditions. In addition, tracking the efficiency that the Applicants anticipate will be a new and not easy task. The Applicants' Master Efficiency Tracker Schedule lists over 300 unique efficiencies that the Applicants aim to achieve among the separate companies and for the combined business over the next five years.[9]

Q. What kinds of integration challenges will the Applicants face?

A. The application in this proceeding sets out more than 145 pages of complex legal, organizational, and financial conditions and requirements in the merger agreement and plan.[10] The plan requires the implementation of an entirely new executive team and management structure within an entirely new "Holdco" structure subsuming the previously separate business entities. The plan contemplates a business structure in which Kansas City Power & Light Company ("KCP&L"), KCP&L Greater Missouri Operations Company ("GMO"), and Westar Energy, Inc. ("Westar") will remain separate legal

[7] Application at 6.
[8] *See* Applicants' response to MECG 1-2, attachment 1, titled "Master Efficiency Tracker Schedule."
[9] *Id.*
[10] Application at appendix C.

entities, but will also integrate many company functions. Applicants witnesses Busser and Greenwood describe the integration process in general terms in their testimony.[11]

Q. What kind of challenges does business unit integration create?

A. Business integration implies human resources, management, systems, and other challenges associated with planning and operations. The very task of integrating the operations of the Applicant companies implies new burdens on employees at the same time that one measure of merger savings is reductions in staffing costs. It is important to remember that all the current employees of the Applicant companies are currently fully employed, with duties and responsibilities. The work load that currently exists for these employees is not going to decrease as a result of the merger.

Q. Are there other potential integration costs and burdens?

A. Integration and transition under the merger implies significantly increased regulatory oversight responsibilities for the Commission and its staff, coming at a time when the Commission is already facing many sector challenges, such as grid modernization, even without the merger. As one example, integration also raises important novel regulatory challenges to ensure that efficiencies do not mask improper cross-business subsidies that could be anti-competitive and result in higher long-term costs to rate payers. As an example of the issues raised by the combination, the planned interactions between the separate affiliates raise questions regarding improper cross subsidization; the application does not propose a mechanism for ensuring against such subsidization. Rather, with a promise of beneficial efficiencies resulting from transactions between and among affiliates, the Applicants seek a waiver of the Commission's Affiliate Transaction Rule in

[11] Applicants witness Busser at pp. 4-11, Applicants witness Greenwood at pp. 18-26.

4 CSR § 240-20.015.[12] Even if such a waiver is granted, the Commission and the Kansas Corporation Commission will face new requirements for more expensive and complex auditing oversight of the combined unit, potentially increasing regulatory costs in Missouri. In this same vein, while the Applicants commit to maintaining separate books and records for GMO and KCP&L, a comprehensive audit of either company will require a thorough review of the other, meaning that audit burdens nearly double in scope.

Q. Do the merger conditions guarantee that the merger will not be detrimental to the public interest?

A. A guarantee that the merger will not be detrimental to the public interest is not possible, or reasonable to expect. The merger conditions themselves are not absolute. As I stated, these commitments have various time components. However, the merger conditions ultimately imposed upon the Applicants will stand out as written and specific obligations among a sea of tasks and initiatives that will be associated with successfully transitioning the companies under the merger.

Q. What is the best way to maximize the likelihood that the outcome of a merger of the scope and magnitude proposed in this Application does not have a detrimental impact on the public interest?

A. I recommend that the Commission follow a process that includes the following steps to support a finding that the merger will meet the Missouri Merger Standard, that is, not be detrimental to the public interest:

[12] Application at p. 13-15.

- Determine whether the Application and record in this proceeding demonstrates that the proposed merger will produce incremental benefits not less than incremental costs, and
- Establish a set of merger conditions that serve to prioritize and measure the Applicants' efforts toward achieving the incremental benefits and savings in the Application.

Q. Are you proposing a new or different merger standard for the Commission in this proceeding?

A. Absolutely not. Rather, I am recommending a process for getting to the findings and conclusions necessitated under the current standard. The keys to my recommendation are that, first, the record must be adequate to support the Commission's findings, and second, that a comprehensive set of merger standards has become the traditional benchmarking and prioritization tool by which regulatory commissions can maximize the likelihood that the merger meets the public interest standard that applies.

Q. What perspective do you recommend that the Commission take regarding its appraisal of the public interest impacted by the proposed merger?

A. A decision on a merger is the singularly broadest and most significant regulatory undertaking that a regulatory commission can face. Mergers do not happen very often—precisely because they are complex and expensive undertakings. Almost all mergers, including this one, are proposed by the applicants as better than each of the merging companies operating individually because the resulting business will be bigger.[13] The thesis of most mergers, including this one, is that bigger companies have access to

[13] *See* Applicants witness Busser at pp. 23-24; Applicants witness Greenwood at pp. 13-14.

cheaper capital, can eliminate redundancies, and can exert buying and negotiating power in markets. This is all likely to be true if the transition and integration functions are executed as smoothly as the Applicants proffer; reality is often quite different, and, at any rate, whether transition and integration are successful will be measured over a period of several years. Bigger companies also challenge effective regulatory oversight due to complexity, must manage a much more significant environmental footprint, and face difficulty in maintaining high levels of customer contact and engagement. Taking all these factors together, it is my contention that in order to effectively assess the impact of the merger, the Commission should take the widest possible perspective of the public interest—because every aspect of the business of providing electric service is on the table and potentially impacted by the merger, not just today, but for many years into the future.[14]

Q. Do the Applicants acknowledge the significant challenges and risks associated with successful merger, transition, integration, and achievement of efficiencies and savings?

A. Applicants' integration leader for the combination of Westar and GPE "perceives" few challenges and risks. Witness Busser describes his perception of the risks associated with realizing proposed merger savings as follows:

- There is "minimal risk" of not achieving support services savings.[15]

[14] "The Commission is tasked with acting in the public interest." Midwest Energy Consumers Group v. Great Plains Energy, Inc., Report and Order of the Missouri Public Service Com'n, EC-2017-0107, at p. 13 (Issue date Feb. 22, 2017, Effective Date Mar. 4, 2017), citing State ex rel. Gulf Transport Co. v. Public Service Com'n, 658 S.W.2d 448, 456 (Mo. App. 1983), "[T]he P.S.C. must have as its principal goal, the vindication of the public interest and must concern itself with competing utilities only incidentally."

[15] Applicants witness Busser at p. 21.

- There are no significant challenges or risks of not achieving generation savings.[16]
- "Approximately $87.4 million of the supply chain savings are attributable to the ability of the Applicants to negotiate lower costs with suppliers because of improvements in the purchasing process and economies of scale." The $87.4 million figure represents about 60% of the total estimated supply chain savings.[17]
- There are no significant challenges or risks related to the achievement of transmission, distribution, or customer service savings.[18]
- The Applicants' assessment of consultant analysis of labor-related savings potential "indicates that the combined Company will have the systems and processes in place to enable reductions in staffing while maintaining and assuring service quality."[19]

III. CONCERNS WITH THE PROPOSED MERGER

Q. How did you approach the merger Application on behalf of Renew Missouri?

A. On behalf of Renew Missouri, I carefully reviewed the merger application, including the proffered merger conditions and commitments, and submitted discovery requests aimed at clarifying and specifying the Application. In particular, Renew Missouri focused its review of the record and discovery efforts on whether the proposed merger would have a detrimental impact on the progress of clean energy development and utilization, the retirement of older fossil-fuel generation, efficient use of energy, grid modernization, and customer opportunities for investing in and benefitting from distributed energy resources, including distributed generation, green power, energy efficiency, energy management, energy storage, and other technologies and services. I will use the term "clean energy

[16] *Id.* at p. 25.
[17] *Id.* at 26. (Calculated as $145.9 / $87.4 = 59.9%)
[18] *Id.* at 29.
[19] *Id.* at 30.

development" as a shorthand reference for all these outcomes that could be impacted by the proposed merger.

Q. What are the major areas of concern relating to clean energy development as it may be impacted by the proposed merger?

A. The bigger, more efficient utility company that emerges from the merger will have the capability to do several positive things to support clean energy development. No meaningful clean energy development outcomes are backed by a firm merger commitment from the Applicants.

Q. What does the Application offer relating to clean energy development benefits?

A. The Application addresses clean energy development in several mostly non-committal ways (emphasis added):

- **Retirement of old, inefficient, and polluting power plants:** The Merger "will enable Westar to accelerate Westar to accelerate the closing of a number of fossil fuel generation units . . . by five to 10 years."[20] It will "be *possible* to accelerate the retirement of five generating units at three of Westar's generating plants."[21] "[T]he retirement of 780 MW of fossil-fuel generation *will be accelerated* because of the Merger."[22]
- **New Renewable Energy:** "[T]he combined Company will have a stronger financial profile as a result of the Merger, which will allow more flexibility to expand KCP&Ls and GMOs wind and emission-free renewable generation portfolio."[23] "Because Missouri and Kansas are premiere locations in the United States for the

[20] Application at 22.
[21] Applicants witness Busser at p. 23.
[22] Applicants witness Ives at p. 22.
[23] Application at 22.

siting of wind power, the Merger *may enable* the future construction of additional wind generation in the region. A significant portion of such additional wind generation *could be* used to serve both Kansas and Missouri customers."[24] "[B]ecause of its greater financial strength compared to GPE or Westar on a standalone basis, the combined Company will have greater flexibility to expand its renewable generation in the future."[25]

- **Energy Efficiency***:* "KCP&L and GMO *have been leaders in their efforts to promote* energy efficiency."[26]
- **Evaluate Distributed Energy Resources***:* Not addressed in Application or testimony.
- **Expand or Improve Stakeholder Engagement in Clean Energy Development and Integrated Resource Planning:** Not addressed in Application or testimony.
- **General:** "Applicants *intend to* continue with the environmental plans and programs of the utilities upon approval of the Merger."[27] KCP&L and Westar confirm that they "expect" no change in service offerings relating to renewable energy and distributed energy resource programs currently in existence. The Applicants do not commit to improving or even maintaining program and service offerings relating to renewable energy and distributed energy resources.[28]

Q. What do you conclude based on your review of the clean energy development benefits asserted in the Application?

[24] Applicants witness Ives at p. 22.
[25] *Id.*
[26] *Id.*
[27] *Id.*
[28] Applicants response to RM-005.

A. As it stands, I find that the merger Application does not promise incremental clean energy development benefits that exceed likely costs and deficiencies.

Q. Can you provide examples of clean energy development that could be provided by a larger, more efficient utility such as the one that Applicants say will result from this merger?

A. The larger utility enterprise that results from this merger should be able to accomplish the following:

- Retire economically challenged coal-fired power plants
- Construct and/or contract for new renewable energy generation
- Conduct a comprehensive, transparent, parallel integrated resource planning process for the combined companies, in both Missouri and Kansas
- Offer new and expanded energy efficiency programs
- Offer new green power rate programs to customers
- Offer opportunities for development of shared or community generation projects
- Develop and implement a demonstration program for energy storage
- Develop and implement a grid modernization plan[29]
- Refrain from implementing any new tariffs or rate designs that would adversely impact development and adoption of distributed energy resources, including distributed generation

Q. Have the Applicants made any firm commitments relating to any of these clean energy development opportunities?

[29] *See* Renew Missouri Comments on Distributed Energy Resource Issues, File No. EW-2017-0245 (20 Oct. 2017) at pp. 17-21.

A. The Applicants offer no specific commitments relating to clean energy developments in the Application beyond the status quo. In response to requests for information on the clean energy development plans:

- The Applicants state that "[t]he Merger may enable the future construction of additional wind generation . . .," but provide no commitment to construct new generation.[30] The combined company IRP for Great Plains and Westar does not call for additional renewable resources.[31] The Applicants propose no new programs that would allow customers of any kind to drive new renewable energy development through green power purchases, community or shared renewables, or other similar initiatives.
- The Applicants state that the merger will allow the accelerated retirement of several 50+ year old Westar power plants by some 5 to 10 years.[32] These plants include the gas-fired Murray Gill units 3 and 4, and Gordon Evans units 1 and 2, and the coal-fired Tecumseh unit 7.[33] However, the merger does not commit to retirement of the plants, even though operational savings associated with the retirements are included in the Master Efficiency Tracker Schedule.[34]
- The Applicants state KCP&L and GMO "will explain to Westar their efforts to promote energy efficiency with the goal of identifying whether the experience of KCP&L and GMO can assist with the promotion of energy efficiency efforts in

[30] Applicants response to RM-002.A.
[31] Applicants response to RM-002.C.
[32] Application at 22.
[33] *Id.*
[34] *See* Applicants' response to MECG 1-2, attachment 1, titled "Master Efficiency Tracker Schedule."

Westar's service territory."[35] However, energy efficiency programs are not expected to change in Missouri or Kansas as a result of the merger, and the prospect for energy efficiency programs in Kansas is uncertain.[36]

- The Applicants offer no indication of any intention to study, demonstrate, pilot, or implement programs, initiatives, or other actions relating to distributed generation, energy storage, grid modernization, innovative or green rates, or other clean energy development efforts related to distributed energy resources.

Q. What do you conclude about the lack of commitments relating to clean energy development in the Application?

A. If the Application is approved as proposed, the merger could be closed and the transition and integration could be completed in compliance with the merger plan without any increase or improvement in clean energy development. The Applicants could fully comply with their proposed plan without any increase in or even study of clean energy development. Such a result would be inconsistent with the trajectory of clean energy development that has been occurring in Missouri over the past ten years. For example, such a result would fail to tap Missouri's significant renewable energy development. As reported by the U.S. Energy Information Administration:

> *Renewable resources currently contribute less than 4% of Missouri's net electricity generation, but there is considerable renewable energy potential in the state. Missouri's primary renewable electricity sources are hydroelectric power and wind energy. The state has several pumped storage facilities and conventional hydroelectric power plants, and there is untapped hydroelectric*

[35] Applicants response to RM-002.D(i).
[36] Applicants response to RM-002.D(ii).

power potential on the state's rivers. As of 2016, Missouri had 659 megawatts of wind generating capacity online, another 300 megawatts being built, and substantial additional wind energy potential, primarily in the state's northwest. Small amounts of the state's net electricity generation come from biomass—mostly wood—and from solar energy. Missouri has significant biomass potential from agricultural waste, from municipal solid waste and landfill gas, and from the 14 million acres of forest that cover roughly one-third of the state. Electricity generation from solar photovoltaic installations is increasing. Several utility-scale facilities have been built, including a 5.7 megawatt solar farm in O'Fallon, Missouri, but most of the state's solar generation comes from distributed (customer-sited, small-scale) facilities at both businesses and homes.[37]

Even while the clean energy growth trend has been relatively modest in Missouri, not continuing that trend would be detrimental to the public interest—denying the Missouri public the jobs, energy diversity, and environmental benefits that clean energy provides.[38] The result would be evidence of a failure to meet the Missouri Merger Standard.

Q. Do you have additional specific concerns?

A. Yes. I am also concerned that the Application does not address the very important developments in grid modernization sweeping through the electricity industry in the United States. Grid modernization represents a suite of utility business model, rate

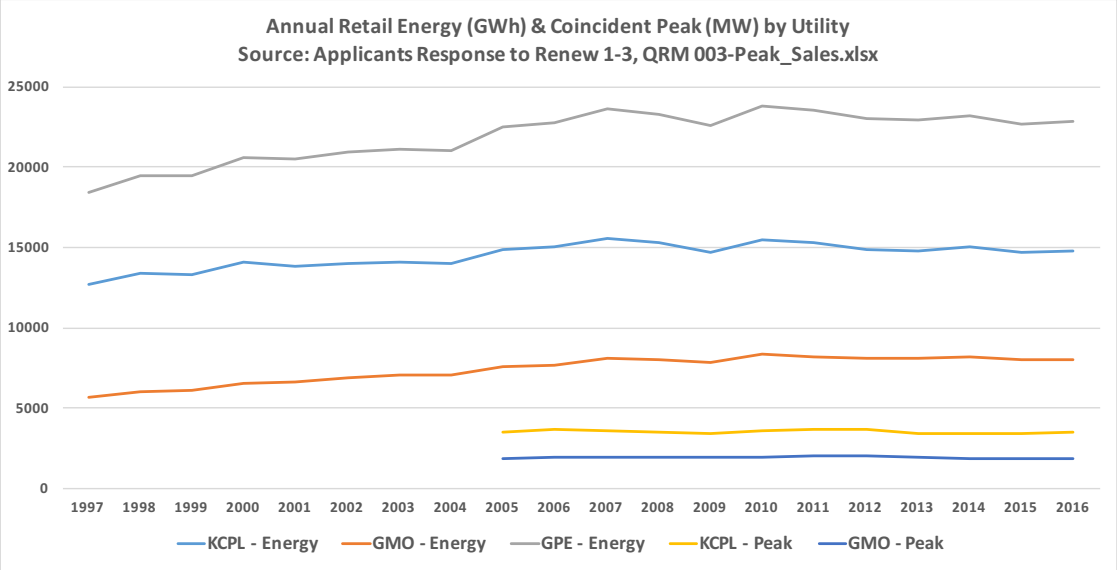
[37] U.S. Energy Information Administration, "Missouri State Energy Profile Analysis," updated Mar. 16, 2017. Available at: https://www.eia.gov/state/analysis.php?sid=MO.

[38] *See, e.g.,* Advanced Energy Economy, "Policy Brief: Expanding Missouri's Corporate Renewable Energy Market," Nov. 2015. Available at: http://info.aee.net/hubfs/State_Policy/policy-brief-expanding-missouri-corporate-renewable-energy-market.pdf.

design, clean and distributed energy, and customer-focused reforms that seeks to transition the electric utility industry into a cleaner, more efficient and affordable, localized, and market-based energy system. Given the complex undertaking that is represented by the merger transition and integration, if grid modernization does not receive a high priority of effort by the merged companies, both the Missouri and Kansas markets could lag behind the rest of the country by several years. Continued progress on grid modernization is therefore essential to ensure that the merger does not result in a detriment to the public interest.

Q. Why is grid modernization planning important?

A. From a very practical sense, the individual companies have seen flat peak demand and energy sales for several years. The Figure below charts annual retail energy sales and coincident peak demand by utility over the past several years.



While there may be some load factor improvements embedded in the flat peak sales, the flat energy sales trends may point to earnings and revenue recovery concerns by the utilities and their shareholders. These same general conditions have been a powerful

force in motivating many utilities to propose increased fixed customer charges, distributed generation access fees, demand charges, new rate classes limited to DER customers, and other changes inimical to clean energy development. Grid modernization strategies may offer significant opportunities to decrease operating costs, and support improvements in system reliability through increased reliance on intelligence, automation, sensing, and communications, as well as on distributed energy resources and the development and offering of innovative rate designs. A grid modernization strategy will also be an important way to reduce the kind of pressure that many utilities are feeling to adopt cost of service approaches and rate designs that are inimical to distributed energy resources and the efficient use of energy.

Q. Do you have additional recommendations regarding grid modernization?

A. Yes. An important component of a grid modernization planning effort would be the conduct of a Value of Solar study to inform rate making efforts relating to distributed generation. A Value of Solar study is a comprehensive analysis of the cost avoided and benefits created for the grid, electricity customers, and society as a result of the generation of solar energy. From a practical perspective, a Value of Solar study conducted through an open, engaged, and stakeholder-driven process can allow the dialogue about distributed generation to move beyond simplistic and subjective cross-allegations of cross subsidies. Because solar energy is often interconnected at the distribution level of the grid, such a study, done correctly, will capture distribution level benefits and costs that cannot be captured by wholesale level avoided cost estimates. The immediate benefit of such a study is to understand the contributions and costs related to distributed solar generation. Properly structured, a Value of Solar study can establish the

foundation for empirical, data-based evaluation of the costs and benefits of the full range of distributed energy resources, including energy storage, combined heat and power, demand response, and grid modernization investments of many kinds. A Value of Solar study should be funded by the Applicants, overseen by the Commission staff, and conducted by a third-party consultant with stakeholder involvement.

Q. What is your concern about cost of service changes and rate designs that may not be supportive of distributed energy resources and efficient use of energy?

A. The new combined companies must do the planning necessary to move efficiently into the future. This means that new comprehensive and transparent integrated resource planning efforts must be undertaken, including increased opportunities for stakeholders to propose planning scenarios for evaluation. This also means that grid modernization planning must occur. And finally, it means that these planning efforts must precede any major cost of service or rate design changes in the rate cases that the companies will file in the coming few years. In other words, the Applicants should commit to not proposing any new rate making initiatives that could adversely impact clean energy development during the next 5 years while transition and integration are underway.

IV. CONCLUSIONS AND RECOMMENDATIONS

Q. Based upon your findings, what conclusions do you reach about the proposed merger?

A. I conclude that the merger Application as proposed does not support a finding that it will not be detrimental to the public interest. The merger Application does not provide sufficient assurance that clean energy development will occur as a result of the merger,

and therefore, the merger will more than likely be detrimental to the public interest unless the Applicants commit to clean energy development measures.

Q. Based on your conclusions, what do you recommend to the Commission?

A. I recommend that the Commission require the Applicants to develop and adopt additional merger commitments as a condition of approval of the merger. These additional commitments should include:

- A firm date-certain commitment to close the Westar coal- and gas-fired power plants slated for early retirement, and an additional commitment to review the Applicants' existing generation fleet for more retirement opportunities.
- A firm date-certain commitment to construct additional renewable energy generation.
- A commitment to initiate a comprehensive, transparent, parallel integrated resource planning process for the combined companies, in both Missouri and Kansas, and to make provisions for stakeholders to submit a reasonable number of alternative development scenarios for evaluation in the planning effort. A comprehensive integrated resource planning process could demonstrate that increased deployment of renewable energy generation, beyond the Applicants' current commitments, could further support the early retirement of coal- and gas-fired generators and its associated avoided costs.
- A commitment to expand energy efficiency program efforts and customer energy efficiency education, and to develop a plan to cost-effectively achieve efficiency improvement across the combined service territories. Missouri currently ranks 37th in the United States in a comprehensive annual scorecard of state energy efficiency

programs and achievements.[39] Incremental energy efficiency achievements have the potential to produce customer savings and environmental benefits.

- A commitment to offer green power programs to customers in all classes.
- A commitment to develop pilot projects for shared or community generation projects.
- A commitment to develop and implement a demonstration program for grid-connected energy storage.
- A commitment to develop and seek regulatory approvals for implementation of a grid modernization plan,[40] and to provide funding for a Value of Solar study to be managed by the Commission staff.
- A commitment to refrain from implementing any new tariffs or rate designs adversely impacting development and adoption of distributed energy resources, including distributed generation for the next 5 years following approval of the Application.

Q. What do you foresee as the effect of adding these merger conditions and commitments?

A. With these added commitments, the combined companies will have obligated themselves to the minimum activities necessary to ensure that the merger is not detrimental to the public interest as relates to the impact of the merger on clean energy development. By integrating these obligations into their transition and integration activities, and prioritizing them as merger commitments subject to oversight by and accountability to

[39] American Council for an Energy-Efficient Economy, The 2017 State Energy Efficiency Scorecard (September 2017), Table ES.1. Available at http://aceee.org/sites/default/files/publications/researchreports/u1710.pdf.

[40] *See* Renew Missouri Comments on Distributed Energy Resource Issues, File No. EW-2017-0245 (20 Oct. 2017), at pp. 17-21.

the Commission, they will establish a reasonable foundation for a finding that the proposed merger satisfies the Missouri Merger Standard.

Q. Are you aware of any other recent merger approvals that included similar clean energy development commitments?

A. Recent merger approvals and settlements have included significant clean energy development commitments. In particular, I would draw the Commission's attention to the order of the Maryland Public Service Commission in its Case Number 9361, involving the merger of Exelon Corporation and Pepco Holdings, Inc.[41] Of particular note, that merger order included the following:

- Conditions 2 and 3: "Customer Investment Fund" and "CIF-Funded Energy Efficiency Program Support"—Requires funding for "energy efficiency programs through a Customer Investment Fund of $43.2 million," the development and implementation of energy efficiency programs, and targeting a percentage of energy efficiency funding to affordable multifamily housing. (p. A-2 through A-7.)
- Condition 4: Energy Efficiency—Requires Pepco and Delmarva to "maintain and promote existing energy efficiency and demand-response programs." (p. A-7.)
- Condition 5: "Enhanced Energy Efficiency Plans"—The combined companies must "develop and file a distinct set of milestones as to how they will accelerate and enhance" EmPOWER Maryland energy efficiency plans, "including proposed penalties for failure to meet commission-approved goals." (p. A-7-A-8.)
- Condition 6: "Green Sustainability Fund"—Exelon must allocate a $14.4 million fund for Maryland customer use, to "stimulate public and private investment within

[41] Public Service Commission of Maryland, Order No. 86990, Case No. 9361 (May 15, 2015), at appendix A.

Pepco's Maryland service territory in solar, storage and other behind-the-meter and distributed generation; energy efficiency and whole home solutions; utility 2.0; resiliency measures; microgrids; water conservation in buildings; clean transportation; community solar; and similar developing energy technologies." (p. A-8.)

- Condition 7: "Renewable Generation Development"—Includes requirements for what Exelon and its subsidiaries must do to support renewable generation development, including "by December 31, 2018, develop or assist in the development of 15 MW of solar generation in Maryland – 5 MW of which will be located in Prince George's County, 5 MW of which will be located in Montgomery County, and 5 MWs of which will be located in the Delmarva service territory." (p. A-12.) They must also, "by December 31, 2018, develop or assist in the development of an incremental 5 MW of solar or other Tier 1 renewable resources in the Delmarva service territory." (p. A-12.) Finally, they must "provide $5 million of capital at market rates for the development of renewable energy projects in Montgomery County." (p. A-12.)
- Condition 13: "Microgrid Development"—Pepco "shall, within 18 months following merger close, file with the Commission a proposal for pilot public-purpose microgrid projects to provide enhanced energy services to the selected areas, including during emergency events." (p. A-18.)
- Condition 14: Requires Delmarva and Pepco to "make a filing with the commission requesting that the commission initiate a proceeding to examine opportunities to transform the electric distribution grid, including the incorporation of smart-grid technology, microgrids, renewable resources, and distributed generation." (p. A19.)

Exelon must contribute up to $500,000 to the Commission "to study relevant issues and/or facilitate the proceeding." Delmarva and Pepco are not permitted to seek recovery for the $500,000 fund in rate filings. (p. A-19.)

- Condition 15: "Interconnection and Net Metering Programs"—Requires Exelon to maintain Delmarva and Pepco's existing programs. (p. A-19.)
- Condition 16: "Enhancements to Interconnection Process for Behind-the-meter small distributed generation in Maryland"—Pepco Holdings International ("PHI") must "provide a transparent, efficient, and clear process for review and approval of interconnection of proposed small distributed generation projects to the PHI distribution systems in Maryland." (p. A-20.)
- Condition 17: Delmarva and Pepco "shall maintain, enhance, and promote programs that provide assistance to limited-income customers." (p. A-23.)

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Great Plains Energy Incorporated for Approval of its Merger with Westar Energy, Inc.	)))	File No. EM-2018-0012

AFFIDAVIT OF KARL R. RÁBAGO

STATE OF NEW YORK)
) **ss**
COUNTY OF WESTCHESTER)

COMES NOW Karl R. Rábago, and on his oath states that he is of sound mind and lawful age; that he prepared the foregoing Rebuttal Testimony; and that the same is true and correct to the best of his knowledge and belief.

Further the Affiant sayeth not.

Karl R. Rábago

Subscribed and sworn before me this 16th day of January, 2018.

Notary Public

RADINA VALOVA
Notary Public, State of New York
Reg. No. 02VA6324862
Qualified in Westchester County
My Commission Expires May 18, 2019

My commission expires: May 18, 2019

Karl R. Rábago

Summary

Nationally recognized leader and innovator in electricity and energy law, policy, and regulation. Experienced as a public utility regulatory commissioner, educator, research and development program manager, utility executive, business builder, federal executive, corporate sustainability leader, consultant, and advocate. Highly proficient in advising, managing, and interacting with government agencies and committees, the media, citizen groups, and business associations. Successful track record of working with US Congress, state legislatures, governors, regulators, city councils, business leaders, researchers, academia, and community groups. National and international contacts through experience with Pace Energy and Climate Center, Austin Energy, AES Corporation, US Department of Energy, Texas Public Utility Commission, Jicarilla Apache Tribal Utility Authority, Cargill Dow LLC (now NatureWorks, LLC), Rocky Mountain Institute, CH2M HILL, Houston Advanced Research Center, Environmental Defense Fund, and others. Skilled attorney, negotiator, and advisor with more than twenty-five years of experience working with diverse stakeholder communities in electricity policy and regulation, emerging energy markets development, clean energy technology development, electric utility restructuring, smart grid development, and the implementation of sustainability principles. Extensive regulatory practice experience. Nationally recognized speaker on energy, environment and sustainable development matters. Managed staff as large as 250; responsible for operations of research facilities with staff in excess of 600. Developed and managed budgets in excess of $300 million. Law teaching experience at Pace University School of Law, University of Houston Law Center, and U.S. Military Academy at West Point. Post-doctorate degrees in environmental and military law. Military veteran.

Employment

PACE ENERGY AND CLIMATE CENTER, PACE UNIVERSITY SCHOOL OF LAW

Executive Director: May 2014—Present.

Leader of a team of professional and technical experts in energy and climate law, policy, and regulation. Responsible for crafting and leading an advocacy agenda on utility sector transformation and clean energy advancement. Active in every aspect of groundbreaking New York "Reforming the Energy Vision" portfolio of proceedings. Engaged in solar market policy across the northeast United States. Built a team of experts engaged in grid modernization efforts in multiple states. Developed a new "Equitable Access to Sustainable Energy" initiative that engages with and support clean energy efforts of low- and moderate-income communities and organizations. Secure funding for and manage execution of research, market development support, and advisory services for a wide range of funders, clients, and stakeholders with the overall goal of advancing clean energy deployment, climate responsibility, and market efficiency. Supervise a team of employees, consultants, and adjunct researchers. Provide learning and development opportunities for law students. Coordinate efforts of the Center with and support the environmental law faculty. Additional activities:

- Co-Director and Principal Investigator, Northeast Solar Energy Market Coalition (2015-present). The NESEMC is a US Department of Energy's SunShot Initiative Solar Market Pathways project. Funded under a cooperative agreement between the US DOE and Pace University, the NESEMC seeks to harmonize solar market policy and advance best policy and regulatory practices in the northeast United States.
- Chairman of the Board, Center for Resource Solutions (1997-present). CRS is a not-for-profit organization based at the Presidio in California. CRS developed and manages the Green-e

Renewable Electricity Brand, a nationally and internationally recognized branding program for green power and green pricing products and programs. Past chair of the Green-e Governance Board (formerly the Green Power Board).

- Director, Interstate Renewable Energy Council (IREC) (2012-present). IREC focuses on issues impacting expanded renewable energy use such as rules that support renewable energy and distributed resources in a restructured market, connecting small-scale renewables to the utility grid, developing quality credentials that indicate a level of knowledge and skills competency for renewable energy professionals.

RÁBAGO ENERGY LLC

Principal: July 2012—Present. Consulting practice dedicated to providing expert witness and policy formulation advice and services to organizations in the clean and advanced energy sectors. Frequent testimony in utility rate-setting cases, plan reviews, and grid modernization cases. Recognized national leader in development and implementation of award-winning "Value of Solar" alternative to traditional net metering. Additional information at www.rabagoenergy.com.

AUSTIN ENERGY – THE CITY OF AUSTIN, TEXAS

Vice President, Distributed Energy Services: April 2009—June 2012. Executive in 8th largest public power electric utility serving more than one million people in central Texas. Responsible for management and oversight of energy efficiency, demand response, and conservation programs; low-income weatherization; distributed solar and other renewable energy technologies; green buildings program; key accounts relationships; electric vehicle infrastructure; and market research and product development. Executive sponsor of Austin Energy's participation in an innovative federally-funded smart grid demonstration project led by the Pecan Street Project. Led teams that successfully secured over $39 million in federal stimulus funds for energy efficiency, smart grid, and advanced electric transportation initiatives. Additional activities included:

- Director, Renewable Energy Markets Association. REMA is a trade association dedicated to maintaining and strengthening renewable energy markets in the United States.
- Membership on Pedernales Electric Cooperative Member Advisory Board. Invited by the Board of Directors to sit on first-ever board to provide formal input and guidance on energy efficiency and renewable energy issues for the nation's largest electric cooperative.

THE AES CORPORATION

Director, Government & Regulatory Affairs: June 2006—December 2008. Government and regulatory affairs manager for AES Wind Generation, one of the largest wind companies in the country. Manage a portfolio of regulatory and legislative initiatives to support wind energy market development in Texas, across the United States, and in many international markets. Active in national policy and the wind industry through work with the American Wind Energy Association as a participant on the organization's leadership council. Also served as Managing Director, Standards and Practices, for Greenhouse Gas Services, LLC, a GE and AES venture committed to generating and marketing greenhouse gas credits to the U.S. voluntary market. Authored and implemented a standard of practice based on ISO 14064 and industry best practices. Commissioned the development of a suite of methodologies and tools for various greenhouse gas credit-producing technologies. Also served as Director, Global Regulatory Affairs, providing regulatory support and group management to AES's international electric utility operations on five continents. Additional activities:

- Director and past Chair, Jicarilla Apache Nation Utility Authority (1998 to 2008). Located in New Mexico, the JAUA is an independent utility developing profitable and autonomous utility services that provides natural gas, water utility services, low income housing, and

energy planning for the Nation. Authored "First Steps" renewable energy and energy efficiency strategic plan.

HOUSTON ADVANCED RESEARCH CENTER

Group Director, Energy and Buildings Solutions: December 2003—May 2006. Leader of energy and building science staff at a mission-driven not-for-profit contract research organization based in The Woodlands, Texas. Responsible for developing, maintaining and expanding upon technology development, application, and commercialization support programmatic activities, including the Center for Fuel Cell Research and Applications, an industry-driven testing and evaluation center for near-commercial fuel cell generators; the Gulf Coast Combined Heat and Power Application Center, a state and federally funded initiative; and the High Performance Green Buildings Practice, a consulting and outreach initiative. Secured funding for major new initiative in carbon nanotechnology applications in the energy sector. Developed and launched new and integrated program activities relating to hydrogen energy technologies, combined heat and power, distributed energy resources, renewable energy, energy efficiency, green buildings, and regional clean energy development. Active participant in policy development and regulatory implementation in Texas, the Southwest, and national venues. Frequently engaged with policy, regulatory, and market leaders in the region and internationally. Additional activities:

- President, Texas Renewable Energy Industries Association. As elected president of the statewide business association, leader and manager of successful efforts to secure and implement significant expansion of the state's renewable portfolio standard as well as other policy, regulatory, and market development activities.
- Director, Southwest Biofuels Initiative. Established the Initiative acts as an umbrella structure for a number of biofuels related projects, including emissions evaluation for a stationary biodiesel pilot project, feedstock development, and others.
- Member, Committee to Study the Environmental Impacts of Windpower, National Academies of Science National Research Council. The Committee was chartered by Congress and the Council on Environmental Quality to assess the impacts of wind power on the environment.
- Advisory Board Member, Environmental & Energy Law & Policy Journal, University of Houston Law Center.

CARGILL DOW LLC (NOW NATUREWORKS, LLC)

Sustainability Alliances Leader: April 2002—December 2003. Founded in 1997, NatureWorks, LLC is based in Minnetonka, Minnesota. Integrated sustainability principles into all aspects of a ground-breaking biobased polymer manufacturing venture. Responsible for maintaining, enhancing and building relationships with stakeholders in the worldwide sustainability community, as well as managing corporate and external sustainability initiatives. NatureWorks is the first company to offer its customers a family of polymers (polylactide – "PLA") derived entirely from annually renewable resources with the cost and performance necessary to compete with packaging materials and traditional fibers; now marketed under the brand name "Ingeo."

- Successfully completed Minnesota Management Institute at University of Minnesota Carlson School of Management, an alternative to an executive MBA program that surveyed fundamentals and new developments in finance, accounting, operations management, strategic planning, and human resource management.

ROCKY MOUNTAIN INSTITUTE

Managing Director/Principal: October 1999–April 2002. In two years, co-led the team and grew annual revenues from approximately $300,000 to more than $2 million in annual grant and consulting income. Co-authored "Small Is Profitable," a comprehensive analysis of the benefits of distributed energy resources. Worked to increase market opportunities for clean and distributed energy resources through consulting, research, and publication activities. Provided consulting and advisory services to help business and government clients achieve sustainability through application and incorporation of Natural Capitalism principles. Frequent appearance in media at international, national, regional and local levels.

- President of the Board, Texas Ratepayers Organization to Save Energy. Texas R.O.S.E. is a non-profit organization advocating low-income consumer issues and energy efficiency programs.
- Co-Founder and Chair of the Advisory Board, Renewable Energy Policy Project-Center for Renewable Energy and Sustainable Technology. REPP-CREST was a national non-profit research and internet services organization.

CH2M HILL

Vice President, Energy, Environment and Systems Group: July 1998–August 1999. Responsible for providing consulting services to a wide range of energy-related businesses and organizations, and for creating new business opportunities in the energy industry for an established engineering and consulting firm. Completed comprehensive electric utility restructuring studies for the states of Colorado and Alaska.

PLANERGY

Vice President, New Energy Markets: January 1998–July 1998. Responsible for developing and managing new business opportunities for the energy services market. Provided consulting and advisory services to utility and energy service companies.

ENVIRONMENTAL DEFENSE FUND

Energy Program Manager: March 1996–January 1998. Managed renewable energy, energy efficiency, and electric utility restructuring programs for a not-for-profit environmental group with a staff of 160 and over 300,000 members. Led regulatory intervention activities in Texas and California. Initiated and managed nationwide collaborative activities aimed at increasing use of renewable energy and energy efficiency technologies in the electric utility industry, including the Green-e Certification Program, Power Scorecard, and others. Participated in national environmental and energy advocacy networks, including the Energy Advocates Network, the National Wind Coordinating Committee, the NCSL Advisory Committee on Energy, and the PV-COMPACT Coordinating Council. Frequently appeared before the Texas Legislature, Austin City Council, and regulatory commissions on electric restructuring issues.

UNITED STATES DEPARTMENT OF ENERGY

Deputy Assistant Secretary, Utility Technologies: January 1995–March 1996. Manager of the Department's programs in renewable energy technologies and systems, electric energy systems, energy efficiency, and integrated resource planning. Supervised technology research, development and deployment activities in photovoltaics, wind energy, geothermal energy, solar thermal energy, biomass energy, high-temperature superconductivity, transmission and distribution, hydrogen, and electric and magnetic fields. Developed, coordinated, and advised on legislation, policy, and renewable energy technology development within the Department, among other agencies, and with Congress. Managed, coordinated, and developed international agreements for cooperative activities in renewable energy and utility sector policy, regulation, and market development. Established and enhanced partnerships with stakeholder groups,

including technology firms, utilities, state and local governments, and associations. Supervised development and deployment support activities at national laboratories. Developed, advocated and managed a Congressional budget appropriation of approximately $300 million.

STATE OF TEXAS

Commissioner, Public Utility Commission of Texas. May 1992–December 1994. Appointed by Governor Ann W. Richards. Regulated electric and telephone utilities in Texas. Laid the groundwork for legislative and regulatory adoption of integrated resource planning, electric utility restructuring, and significantly increased use of renewable energy and energy efficiency resources. Co-chair and organizer of the Texas Sustainable Energy Development Council. Vice-Chair of the National Association of Regulatory Utility Commissioners (NARUC) Committee on Energy Conservation. Member and co-creator of the Photovoltaic Collaborative Market Project to Accelerate Commercial Technology (PV-COMPACT). Member, Southern States Energy Board Integrated Resource Planning Task Force. Member of the University of Houston Environmental Institute Board of Advisors.

LAW TEACHING

Professor for a Designated Service: Pace University Law School, 2014-present. Non-tenured member of faculty. Courses taught: Energy Law. Supervise a student clinical effort that engages in a wide range of advocacy, analysis, and research activities in support of the mission of the Pace Energy and Climate Center.

Associate Professor of Law: University of Houston Law Center, 1990–1992. Full time, tenure track member of faculty. Courses taught: Criminal Law, Environmental Law, Criminal Procedure, Environmental Crimes Seminar, Wildlife Protection Law. Provided *pro bono* legal services in administrative proceedings and filings at the Texas Public Utility Commission.

Assistant Professor: United States Military Academy, West Point, New York, 1988–1990. Member of the faculty in the Department of Law. Honorably discharged in August 1990, as Major in the Regular Army. Courses taught: Constitutional Law, Military Law, and Environmental Law Seminar. While carrying a full time teaching load, earned a Master of Laws degree in Environmental Law. Established a program for subsequent environmental law professors to obtain an LL.M. prior to joining the faculty.

LITIGATION

Trial Defense Attorney and Prosecutor, U.S. Army Judge Advocate General's Corps, Fort Polk, Louisiana, January 1985–July 1987. Assigned to Trial Defense Service and Office of the Staff Judge Advocate. Prosecuted and defended more than 150 felony-level courts-martial. As prosecutor, served as legal officer for two brigade-sized units (approximately 5,000 soldiers), advising commanders on appropriate judicial, non-judicial, separation, and other actions. Pioneered use of some forms of psychiatric and scientific testimony in administrative and judicial proceedings.

NON-LEGAL MILITARY SERVICE

Armored Cavalry Officer, 2d Squadron 9th Armored Cavalry, Fort Stewart, Georgia, May 1978–August 1981. Served as Logistics Staff Officer (S-4). Managed budget, supplies, fuel, ammunition, and other support for an Armored Cavalry Squadron. Served as Support Platoon Leader for the Squadron (logistical support), and as line Platoon Leader in an Armored Cavalry Troop. Graduate of Airborne and Ranger Schools. Special training in Air Mobilization Planning and Nuclear, Biological and Chemical Warfare.

Formal Education

LL.M., Environmental Law, Pace University School of Law, 1990: Curriculum designed to provide breadth and depth in study of theoretical and practical aspects of environmental law. Courses included: International and Comparative Environmental Law, Conservation Law, Land Use Law, Seminar in Electric Utility Regulation, Scientific and Technical Issues Affecting Environmental Law, Environmental Regulation of Real Estate, Hazardous Wastes Law. Individual research with Hudson Riverkeeper Fund, Garrison, New York.

LL.M., Military Law, U.S. Army Judge Advocate General's School, 1988: Curriculum designed to prepare Judge Advocates for senior level staff service. Courses included: Administrative Law, Defensive Federal Litigation, Government Information Practices, Advanced Federal Litigation, Federal Tort Claims Act Seminar, Legal Writing and Communications, Comparative International Law.

J.D. with Honors, University of Texas School of Law, 1984: Attended law school under the U.S. Army Funded Legal Education Program, a fully funded scholarship awarded to 25 or fewer officers each year. Served as Editor-in-Chief (1983–84); Articles Editor (1982–83); Member (1982) of the Review of Litigation. Moot Court, Mock Trial, Board of Advocates. Summer internship at Staff Judge Advocate's offices. Prosecuted first cases prior to entering law school.

B.B.A., Business Management, Texas A&M University, 1977: ROTC Scholarship (3–yr). Member: Corps of Cadets, Parson's Mounted Cavalry, Wings & Sabers Scholarship Society, Rudder's Rangers, Town Hall Society, Freshman Honor Society, Alpha Phi Omega service fraternity.

Selected Publications

"Achieving very high PV penetration – The need for an effective electricity remuneration framework and a central role for grid operators," Richard Perez (corresponding author), Energy Policy, Vol. 96, pp. 27-35 (2016)

"The Net Metering Riddle," Electricity Policy.com, (April 2016)

"The Clean Power Plan," Power Engineering Magazine (invited editorial), Vol. 119, Issue 12 (Dec. 2, 2015)

"The 'Sharing Utility:' Enabling & Rewarding Utility Performance, Service & Value in a Distributed Energy Age," co-author, 51st State Initiative, Solar Electric Power Association (Feb. 27, 2015)

"Rethinking the Grid: Encouraging Distributed Generation," Building Energy Magazine, Vol. 33, No. 1 Northeast Sustainable Energy Association (Spring 2015)

"The Value of Solar Tariff: Net Metering 2.0," The ICER Chronicle, Ed. 1, p. 46 [International Confederation of Energy Regulators] (December 2013)

"A Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation," co-author, Interstate Renewable Energy Council (October 2013)

"The 'Value of Solar' Rate: Designing an Improved Residential Solar Tariff," Solar Industry, Vol. 6, No. 1 (Feb. 2013)

"A Review of Barriers to Biofuels Market Development in the United States," 2 Environmental & Energy Law & Policy Journal 179 (2008)

"A Strategy for Developing Stationary Biodiesel Generation," Cumberland Law Review, Vol. 36, p.461 (2006)

"Evaluating Fuel Cell Performance through Industry Collaboration," co-author, Fuel Cell Magazine (2005)

"Applications of Life Cycle Assessment to NatureWorks™ Polylactide (PLA) Production," co-author, Polymer Degradation and Stability 80, 403-19 (2003)

"An Energy Resource Investment Strategy for the City of San Francisco: Scenario Analysis of Alternative Electric Resource Options," contributing author, Prepared for the San Francisco Public Utilities Commission, Rocky Mountain Institute (2002)

"Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size," co-author, Rocky Mountain Institute (2002)

"Socio-Economic and Legal Issues Related to an Evaluation of the Regulatory Structure of the Retail Electric Industry in the State of Colorado," with Thomas E. Feiler, Colorado Public Utilities Commission and Colorado Electricity Advisory Panel (April 1, 1999)

"Study of Electric Utility Restructuring in Alaska," with Thomas E. Feiler, Legislative Joint Committee on electric Restructuring and the Alaska Public Utilities Commission (April 1, 1999)

"New Markets and New Opportunities: Competition in the Electric Industry Opens the Way for Renewables and Empowers Customers," EEBA Excellence (Journal of the Energy Efficient Building Association) (Summer 1998)

"Building a Better Future: Why Public Support for Renewable Energy Makes Sense," Spectrum: The Journal of State Government (Spring 1998)

"The Green-e Program: An Opportunity for Customers," with Ryan Wiser and Jan Hamrin, Electricity Journal, Vol. 11, No. 1 (January/February 1998)

"Being Virtual: Beyond Restructuring and How We Get There," Proceedings of the First Symposium on the Virtual Utility, Klewer Press (1997)

"Information Technology," Public Utilities Fortnightly (March 15, 1996)

"Better Decisions with Better Information: The Promise of GIS," with James P. Spiers, Public Utilities Fortnightly (November 1, 1993)

"The Regulatory Environment for Utility Energy Efficiency Programs," Proceedings of the Meeting on the Efficient Use of Electric Energy, Inter-American Development Bank (May 1993)

"An Alternative Framework for Low-Income Electric Ratepayer Services," with Danielle Jaussaud and Stephen Benenson, Proceedings of the Fourth National Conference on Integrated Resource Planning, National Association of Regulatory Utility Commissioners (September 1992)

"What Comes Out Must Go In: The Federal Non-Regulation of Cooling Water Intakes Under Section 316 of the Clean Water Act," Harvard Environmental Law Review, Vol. 16, p. 429 (1992)

"Least Cost Electricity for Texas," State Bar of Texas Environmental Law Journal, Vol. 22, p. 93 (1992)

"Environmental Costs of Electricity," Pace University School of Law, Contributor–Impingement and Entrainment Impacts, Oceana Publications, Inc. (1990)

Table of Testimony Submitted by Karl R. Rábago, on behalf of Pace Energy and Climate Center, or through Rábago Energy LLC

(as of 1 Jan. 2018)

Date	Proceeding	Case/Docket #	On Behalf Of:
Dec. 21, 2012	VA Electric & Power Special Solar Power Tariff	Virginia SCC Case # PUE-2012-00064	Southern Environmental Law Center
May 10, 2013	Georgia Power Company 2013 IRP	Georgia PSC Docket # 36498	Georgia Solar Energy Industries Association
Jun. 23, 1203	Louisiana Public Service Commission Re-examination of Net Metering Rules	Louisiana PSC Docket # R-31417	Gulf States Solar Energy Industries Association
Aug. 29, 2013	DTE (Detroit Edison) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17302	Environmental Law and Policy Center
Sep. 5, 2013	CE (Consumers Energy) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17301	Environmental Law and Policy Center
Sep. 27, 2013	North Carolina Utilities Commission 2012 Avoided Cost Case	North Carolina Utilities Commission Docket # E-100, Sub. 136	North Carolina Sustainable Energy Association
Oct. 18, 2013	Georgia Power Company 2013 Rate Case	Georgia PSC Docket # 36989	Georgia Solar Energy Industries Association
Nov. 4, 2013	PEPCO Rate Case (District of Columbia)	District of Columbia PSC Formal Case # 1103	Grid 2.0 Working Group & Sierra Club of Washington, D.C.
Apr. 24, 2014	Dominion Virginia Electric Power 2013 IRP	Virginia SCC Case # PUE-2013-00088	Environmental Respondents
May 7, 2014	Arizona Corporation Commission Investigation on the Value and Cost of Distributed Generation	Arizona Corporation Commission Docket # E-00000J-14-0023	Rábago Energy LLC (invited presentation and workshop participation)
Jul. 10, 2014	North Carolina Utilities Commission 2014 Avoided Cost Case	North Carolina Utilities Commission Docket # E-100, Sub. 140	Southern Alliance for Clean Energy
Jul. 23, 2014	Florida Energy Efficiency and Conservation Act, Goal Setting – FPL, Duke, TECO, Gulf	Florida PSC Docket # 130199-EI, 130200-EI, 130201-EI, 130202-EI	Southern Alliance for Clean Energy
Sep. 19, 2014	Ameren Missouri's Application for Authorization to Suspend Payment of Solar Rebates	Missouri PSC File No. ET-2014-0350, Tariff # YE-2014-0494	Missouri Solar Energy Industries Association
Aug. 6, 2014	Appalachian Power Company 2014 Biennial Rate Review	Virginia SCC Case # PUE-2014-00026	Southern Environmental Law Center (Environmental Respondents)

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(as of 1 Jan. 2018)

Aug. 13, 2014	Wisconsin Public Service Corp. 2014 Rate Application	Wisconsin PSC Docket # 6690-UR-123	RENEW Wisconsin and Environmental Law & Policy Center
Aug. 28, 2014	WE Energies 2014 Rate Application	Wisconsin PSC Docket # 05-UR-107	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 18, 2014	Madison Gas & Electric Company 2014 Rate Application	Wisconsin PSC Docket # 3720-UR-120	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 29, 2014	SOLAR, LLC v. Missouri Public Service Commission	Missouri District Court Case # 14AC-CC00316	SOLAR, LLC
Jan. 28, 2016 (date of CPUC order)	Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs, etc.	California PUC Rulemaking 14-07-002	The Utility Reform Network (TURN)
Mar. 20, 2015	Orange and Rockland Utilities 2015 Rate Application	New York PSC Case # 14-E-0493	Pace Energy and Climate Center
May 22, 2015	DTE Electric Company Rate Application	Michigan PSC Case # U-17767	Michigan Environmental Council, NRDC, Sierra Club, and ELPC
Jul. 20, 2015	Hawaiian Electric Company and NextEra Application for Change of Control	Hawai'i PUC Docket # 2015-0022	Hawai'i Department of Business, Economic Development, and Tourism
Sep. 2, 2015	Wisc. PSCo Rate Application	Wisconsin PSC Case # 6690-UR-124	ELPC
Sep. 15, 2015	Dominion Virginia Electric Power 2015 IRP	VA SCC Case # PUE-2015-00035	Environmental Respondents
Sep. 16, 2015	NYSEG & RGE Rate Cases	New York PSC Cases 15-E-0283, -0285	Pace Energy and Climate Center
Oct. 14, 2015	Florida Power & Light Application for CCPN for Lake Okeechobee Plant	Florida PSC Case 150196-EI	Environmental Confederation of Southwest Florida
Oct. 27, 2015	Appalachian Power Company 2015 IRP	VA SCC Case # PUE-2015-00036	Environmental Respondents
Nov. 23, 2015	Narragansett Electric Power/National Grid Rate Design Application	Rhode Island PUC Docket No. 4568	Wind Energy Development, LLC
Dec. 8, 2015	State of West Virginia, et al., v. U.S. EPA, et al.	U.S. Court of Appeals for the District of Columbia Circuit Case No. 15-1363 and Consolidated Cases	Declaration in Support of Environmental and Public Health Intervenors in Support of Movant Respondent-Intervenors' Responses in Opposition to Motions for Stay

Table of Testimony Submitted by Karl R. Rábago, on behalf of Pace Energy and Climate Center, or through Rábago Energy LLC

(as of 1 Jan. 2018)

Dec. 28, 2015	Ohio Power/AEP Affiliate PPA Application	PUC of Ohio Case No. 14-1693-EL-RDR	Environmental Law and Policy Center
Jan. 19, 2016	Ohio Edison Company, Cleveland Electric Illuminating Company, and Toledo Edison Company Application for Electric Security Plan (FirstEnergy Affiliate PPA)	PUC of Ohio Case No. 14-1297-EL-SSO	Environmental Law and Policy Center
Jan. 22, 2016	Northern Indiana Public Service Company (NIPSCO) Rate Case	Indiana Utility Regulatory Commission Cause No. 44688	Citizens Action Coalition and Environmental Law and Policy Center
Mar. 18, 2016	Northern Indiana Public Service Company (NIPSCO) Rate Case – Settlement Testimony	Indiana Utility Regulatory Commission Cause No. 44688	Joint Intervenors - Citizens Action Coalition and Environmental Law and Policy Center
Mar. 18, 2016	Comments on Pilot Rate Proposals by MidAmerican and Alliant	Iowa Utility Board NOI-2014-0001	Environmental Law and Policy Center
May 27, 2016	Consolidated Edison of New York Rate Case	New York PSC Case No. 16-E-0060	Pace Energy and Climate Center
June 21, 2016	Federal Trade Commission: Workshop on Competition and Consumer Protection Issues in Solar Energy	Invited workshop presentation	Pace Energy and Climate Center
Aug. 17, 2016	Dominion Virginia Electric Power 2016 IRP	VA SCC Case # PUE-2016-00049	Environmental Respondents
Sep. 13, 2016	Appalachian Power Company 2016 IRP	VA SCC Case # PUE-2016-00050	Environmental Respondents
Oct. 27, 2016	Consumers Energy PURPA Compliance Filing	Michigan PSC Case No. U-18090	Environmental Law & Policy Center, "Joint Intervenors"
Oct. 28, 2016	Delmarva, PEPCO (PHI) Utility Transformation Filing – Review of Filing & Utilities of the Future Whitepaper	Maryland PSC Case PC 44	Public Interest Advocates
Dec. 1, 2016	DTE Electric Company PURPA Compliance Filing	Michigan PSC Case No. U-18091	Environmental Law & Policy Center, "Joint Intervenors"
Dec. 16, 2016	Rebuttal of Unitil Testimony in Net Energy Metering Docket	New Hampshire Docket No. DE 16-576	New Hampshire Sustainable Energy Association ("NHSEA")
Jan. 13, 2017	Gulf Power Company Rate Case	Florida Docket No. 160186-EI	Earthjustice, Southern Alliance for Clean Energy, League of Women Voters-Florida

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Jan. 13, 2017	Alpena Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18089	Environmental Law & Policy Center, "Joint Intervenors"
Jan. 13, 2017	Indiana Michigan Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18092	Environmental Law & Policy Center, "Joint Intervenors"
Jan. 13, 2017	Northern States Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18093	Environmental Law & Policy Center, "Joint Intervenors"
Jan. 13, 2017	Upper Peninsula Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18094	Environmental Law & Policy Center, "Joint Intervenors"
Mar. 10, 2017	Eversource Energy Grid Modernization Plan	Massachusetts DPU Case No. 15-122/15-123	Cape Light Compact
Apr. 27, 2017	Eversource Rate Case & Grid Modernization Investments	Massachusetts DPU Case No. 17-05	Cape Light Compact
May 2, 2017	AEP Ohio Power Electric Security Plan	PUC of Ohio Case No. 16-1852-EL-SSO	Environmental Law & Policy Center
Jun. 2, 2017	Vectren Energy TDSIC Plan	Indiana URC Cause No. 44910	Citizens Action Coalition & Valley Watch
Jul. 28, 2017	Vectren Energy 2016-2017 Energy Efficiency Plan	Indiana URC Cause No. 44645	Citizens Action Coalition
Jul. 28, 2017	Vectren Energy 2018-2020 Energy Efficiency Plan	Indiana URC Cause No. 44927	Citizens Action Coalition
Aug. 11, 2017	Dominion Virginia Electric Power 2017 IRP	VA SCC Case # PUR-2017-00051	Environmental Respondents
Aug. 18, 2017	Appalachian Power Company 2017 IRP	VA SCC Case # PUR-2017-00045	Environmental Respondents
Aug. 25, 2017	Niagara Mohawk Power Co. d/b/a National Grid Rate Case	NY PSC Case # 17-E-0238, 17-G-0239	Pace Energy and Climate Center
Sep. 15, 2017	Niagara Mohawk Power Co. d/b/a National Grid Rate Case	NY PSC Case # 17-E-0238, 17-G-0239	Pace Energy and Climate Center
Oct. 20, 2017	Missouri PSC Working Case to Explore Emerging Issues in Utility Regulation	MO PSC File No. EW-2017-0245	Renew Missouri

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Nov. 21, 2017	Central Hudson Gas & Electric Co. Electric and Gas Rates Cases	NY PSC Case # 17-E-0459, -0460	Pace Energy and Climate Center