STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

BEFORE THE PUBLIC UTILITIES COMMISSION

IN RE: REVIEW OF THE NARRAGANSETT ELECTRIC COMPANY

PROPOSED POWER SECTOR TRANSFORMATION PLAN

PURSUANT TO R.I. GEN. LAWS § 39-1-1 et seq.

DOCKET NO. 4780

PREFILED DIRECT TESTIMONY

OF

KARL R. RÁBAGO

EXECUTIVE DIRECTOR, PACE ENERGY AND CLIMATE CENTER

on behalf of

NEW ENERGY RHODE ISLAND

APRIL 25, 2018

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND

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

A. My name is Karl R. Rábago. I am executive director of the Pace Energy and Climate Center ("Pace"), a project of the Pace University Elisabeth Haub School of Law, with offices located at 78 North Broadway, White Plains, New York.

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

A. I am testifying on behalf of New Energy Rhode Island ("NERI").

Q. Please summarize your education and work experience.

A. I earned a B.B.A. in management (1977) from Texas A&M University, a J.D. with honors (1984) from the University of Texas School of Law, and LL.M. degrees in military law (1988) and environmental law (1990) from, respectively, the U.S. Army Judge Advocate General's School and Pace University School of Law. I served for more than twelve years as an officer in the U.S. Army, including in the Judge Advocate General's Corps and as an assistant professor of law at the United States Military Academy at West Point, New York. I have also worked for more than 20 years in the electricity industry and related fields. I have served as a Commissioner with the Texas Public Utility Commission (1992-1994) and as a Deputy Assistant Secretary for the Office of Utility Technologies with the U.S. Department of Energy (1995-1996). More recently, I have served as Director of Government and Regulatory Affairs for the AES Corporation (2006-2008) and as Vice President of Distributed Energy Services for Austin Energy, a large urban municipal electric utility in Texas. In 2012, I founded and became the principal of Rábago Energy LLC. I also currently serve as Chairman of the Board of Directors of the Center for Resource Solutions (1997-present) and as a member of the

Board of Directors of the Interstate Renewable Energy Council (2012-present). I started as the Executive Director of the Pace Energy and Climate Center in May 2014. My education and work experience is set forth in detail on my resume, attached as **Exhibit 1**.

Q. Have you testified previously before the Rhode Island Public Utilities Commission?

A. Yes, I filed testimony in Docket No. 4568, participated in Docket No. 4600, and filed testimony in Docket No. 4770. I have also testified under oath, participated in regulatory proceedings, or made presentations before state legislative or regulatory bodies in Arkansas, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, North Carolina, Ohio, Virginia, and Wisconsin. A table of my former testimony is attached as **Exhibit 2**.

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

A. I reviewed the Company's application and work papers in this proceeding and Docket No. 4770, and other filings relevant to this proceeding. In addition, I reviewed applicable Rhode Island statutes, relevant Rhode Island court decisions, testimony that I have submitted in other regulatory proceedings, and related reports.

Q. What is the purpose of this testimony?

A. This testimony offers recommendations based on a review of the Power Sector Transformation ("PST") Plan Filing ("Application") submitted by Narragansett Electric Company ("Narragansett" or "Company") d/b/a National Grid before the Rhode Island Public Utilities Commission ("Commission"). This testimony approaches the Company's Application in four major areas: (1) revenue requirements and revenue recovery, (2) performance incentive mechanisms and return on equity, (3) benefit-cost analysis, and (4) planning and third-party market support. This testimony concludes that the Company has failed to meet its obligations to produce a PST Plan that comports with guidance provided by the Commission. Therefore, this testimony recommends significant modifications to the Company proposal as a condition of Commission approval. This testimony should be read in conjunction with testimony filed by this witness in Docket No. 4770,[1] the Company's rate application filing that accompanies this proceeding, and which addresses various aspects of the Company's proposed rates and rate changes and finds that they are inconsistent with the Commission's vision and guidance for Power Sector Transformation.[2]

OVERVIEW

Q. What drives the need for grid modernization and power sector transformation?

A. The current electric system provides adequate electric service under an old model designed under substantially different technological, economic, and environmental conditions, and has done so while also imposing costs and harms on citizens and businesses. Conditions have changed. Many of the substantial harms associated with the status quo utility business model can be avoided. Improving the alignment of customer and Company interests is critical to ensuring that Rhode Island's residents and businesses do not suffer economic and environmental harm from the State's energy systems. At the same time, this realignment is critical to ensure the ongoing viability of the Company as a

[1] Prefiled direct testimony of NERI witness Rábago in Docket No. 4770 (Apr. 6, 2018).
[2] Rhode Island Division of Public Utilities & Carriers, Office of Energy Resources, and Public Utilities Commission, "Rhode Island Power Sector Transformation Phase One Report to Governor Gina M. Raimondo," (Nov. 2017) ("PST Report"), at p. 12.

stand-alone entity within Rhode Island, as it embarks on a course of adapting its business model and strategies to enable new innovations and customer choices.

Q. What is the Company's role in transformation?

A. The Company must facilitate the rapid development of twenty-first century transmission and distribution grids, establish itself as a supportive platform for development of third-party markets, support customer engagement, and implement new rate structures in concert with changes to the outdated regulatory compact. In every proceeding before the Commission, like this one and the Company's Application in Docket No. 4770, the Company must make material progress on these objectives to avoid lost opportunities for savings and service improvements. As I explained in my testimony in Docket No. 4770, the Company proposed rate designs that are directly opposed to PST goals—the PST-related provisions in both this proceeding and Docket No. 4770 should be addressed in parallel.

Q. How does the Company's PST filing square with its broader grid modernization plans for operations in Rhode Island and other U.S. distribution service territories?

A. In spite of many hundreds of hours spent on Dockets Nos. 4568, 4600, 4600-A, and PST, the Company's PST proposals and its related proposals in Docket No. 4770 are poorly developed and are not supported by a broader grid modernization plan. As noted by Division witness Booth,[3] the Company has yet to file a comprehensive Grid Modernization Plan and does not include one in this proceeding. The collective filings in

[3] Prefiled direct testimony of Division witness Booth in Docket No. 4770 at p. 12 *et seq.*

this case do not constitute and are not supported by an integrated plan and are simply not ready for Commission approval without substantial modification and enhancement.

Q. Why is it so important that the Company failed to support its proposals with a comprehensive plan?

A. The PST process has three major goals: controlling the long-term costs of the electric system; giving customers more energy choices and information; and building a flexible grid to integrate more clean, distributed energy generation. The Company needs a plan to realize these goals.

Q. How does the Company's PST Plan proposal square with the PST Report Recommended Actions?

A. The PST Report includes seventeen recommended actions in four categories designed to advance the PST goals.[4] Table 1, below, summarizes my findings relating to how the Company's PST Plan proposal addresses those Recommended Actions. In general, I find that while the Company PST Plan does include some actions that are responsive to the PST Report Recommended Actions, there are flaws in several of those responses. In addition, the Company fails to address several actions and makes only cursory reference to others. I find a lack of coherence in the Company's PST Plan proposal, between the Company PST Plan and its proposals in Docket No. 4770, and between the PST Plan proposal and important Commission guidance documents.

TABLE 1: PST Report Recommended Actions & Findings from Company PST Plan.

PST Report Recommended Actions	***Status in Company PST Plan Application***
Modernization of the Utility Business Model	

[4] PST Report at pp. 10-12.

1.1 Create a multi-year rate plan and budget with a revenue cap to incent cost savings.	Not proposed by Company.
1.2 Shift to a pay for performance model by developing performance incentive mechanisms for system efficiency, distributed energy resources, and customer and network support.	Proposed by Company. Several proposals are flawed and inconsistent with goals of 4600. Substantial changes required.
1.3 Develop new value-streams from the distribution grid to generate third-party revenue and reduce the burden on ratepayers.	Not proposed by Company. Demonstrations and pilots proposed likely to increase company control rather than incentivize market activity. Enablement of third-party programs and offerings cited as a potential benefit of AMF investments—depending on outcomes further study, comprehensive grid modernization plan (not presented), and ultimate implementation.
1.4 Update service quality metrics to address today's priorities, including power outage prevention, cyber-resiliency and customer engagement.	Update to Service Quality Metrics not proposed by Company.
1.5 Assess the existing split-treatment of capital and operating expenses.	Not addressed by Company.
Build a Connected Distribution Grid	
2.1 Deploy advanced meters.	Company proposes AMI study and some enabling investments.
2.2 Plan for third-party access and innovation.	No specific plan proposed by Company. Third-party data access discussed in AMF plan.
2.3 Share the cost burden through partnerships.	Partnerships to be evaluated after AMF study completed. Partnerships planned for geothermal heat pilots (2).
2.4 Focus on capabilities to avoid technological obsolescence.	Discussed by Company in para. 4.2 Upgradability of Infrastructure (Company PST Book 1, Ch. 4 – Alignment of AMF Plan with 4600 Goals), and Company PST Panel Testimony at p. 46, ll. 4-8 ("To reduce the risk of obsolescence, the Company plans, to the best of its ability, to "future-proof" the investments by …")

2.5 Proactively manage cyber resilience.	Addressed by Company as an element of grid modernization investments.
Leverage Distribution System Information to Increase System Efficiency	
3.1 Synchronize filings related to Distribution System Planning.	Company proposes separate PST Tracker. Company does not integrate incentives into rate case application. The Company states only that it "will attempt to align its PST plan with its annual ISR filing to better inform the PUC on all proposed costs that will impact customers." Company PST Panel Testimony at p. 97, ll. 1-2.
3.2 Improve forecasting.	Company 15-yr DER & Load Forecast to be made available through Portal.
3.3 Establish customer and third-party data access plans.	Company offers no specific plan. Customer and third-party data access discussed in AMF plan in context of Company's current Green Button Connect system.
3.4 Compensate locational value.	Compensation not discussed. Company proposes locational value analysis as part of grid modernization activities associated with System Data Portal. Company does not indicate how results of analysis will be used.
Advance electrification that is beneficial to system efficiency and greenhouse gas emission	
4.1 Design rates to increase system efficiency.	Rates to increase system efficiency not addressed. Company proposes residential and small commercial rates in Docket No. 4770 that would weaken customer incentives to support improved system efficiency. Company proposes to earn incentives for system efficiency, though design may reward results the Company did not cause.
4.2 Establish outcome-based metrics.	Company proposes incentives for range of outcomes, but alignment with Docket No. 4600 and PST is weak.
4.3 Beneficial heating proposals should be consistent with principles outlined in the Commission White Paper on beneficial electrification.	Company's electric heat proposal does not address Commission BE principles.

Q. How would development and implementation of a more coherent PST plan serve the PST goals?

A. Such a plan should ultimately result in a dramatic reduction in fossil fuel consumption and related costs, as fossil fuels are replaced by renewable energy resources. Such change would be accompanied by an equally dramatic change in how utility revenues are expended. The plan should also result in dramatic growth in markets for DER provided by third-parties. Funds could be redirected to more local investments in a modern grid and DER enablement. This shift would put privately funded energy investments to work for Rhode Island.

Q. What stands in the way?

A. The existing regulatory model rewards the Company for increasing capital expenditures by basing allowed revenues on the value of the rate base, irrespective of utility performance on targeted outcomes. The Company's filings in Docket No. 4770 and this proceeding are also largely inimical to this vision. In Docket No. 4770, the Company's rate design and return on equity proposals would weaken customer DER economics while allowing the Company to profit excessively from maintaining the status quo. In this proceeding, the Company seeks a regulatory pre-approval for spending on a disjointed raft of initiatives, and additional earnings incentives that would reward business-as-usual performance.

Q. How should this fundamental misalignment of the interests of customers and of the Company be addressed in this proceeding?

A. The incentives and approaches applied to the Company in the past and proposed by the Company in Docket No. 4770 and this proceeding have not been and will not likely be transformative in moving the Company toward Rhode Island's energy goals. The Commission's order in this case should establish a new direction and accelerated momentum toward those goals, ensuring that Company revenue is earned, to the extent possible, through performance-based mechanisms.

Q. What are the primary tools for realizing the Commission's vision for Power Sector Transformation?

A. The PST Report identifies five "Levers of Reform" for advancing Power Sector Transformation: (1) pay for performance, (2) investment in intelligence and connectivity, (3) replacement of ratepayer funds with new sources of utility revenue, (4) leveraging the power of information, and (5) increasing the reliability and resilience of the electric distribution system. As a whole, the most important lever is rethinking the fundamental paradigm for electricity service—the electric service business model. If the Power Sector Transformation process does not result in a dramatic shift, and soon, the result will be continued unnecessary economic waste, environmental damage, and inequity.

Q. How should these Levers of Reform have been reflected in the Company's PST Plan filing?

A. At a very high level, there are two main components to power sector transformation. First is a study and planning process that incorporates state-of-the-art experience and understanding, stakeholder insights, and yields a flexible blueprint for implementation. Second, the Company must execute and iterate on the Plan. In my review of the Company's application, I looked for evidence that the Company has internalized and reflected in its PST Plan these levers in both planning and execution.

Q. Please explain.

A. The Levers of Reform reflect both priority areas and outcomes—serving as benchmarks against which both planning and execution can be evaluated. "Pay for performance" means breaking the link between utility profitability and the traditional drivers of electricity throughput and utility capital investments. It is accomplished by shifting an increasing fraction of utility revenues from traditional "rate base" to returns generated from meeting performance standards and enabling customer engagement and third-party market animation. "Investment in intelligence and connectivity," "leveraging the power of information," and "improved distribution system reliability and resiliency" all imply building the technological infrastructure to support, and creating an information rich environment to streamline customer and third-party access to customer usage data, provide constantly updated and increasingly granular and locational grid condition information, and carefully and constantly evaluate of all of the costs and benefits of both DER and status quo investments and activities for optimization of their deployment. Successful use of these levers involves prioritization and measurement of actual customer and third-party engagement, reduced times for and prevention of faults and failures, and reductions in utility capital investment. Unless third-party and customer engagement are measured side by side with utility grid modernization investments, however, there is a huge risk of "gold-plating"—the excessive and economically inefficient investment in utility rate-based infrastructure without concomitant realization of customer and societal benefits. For this reason, reliance on transparent and comprehensive benefit-cost analysis ("BCA") is critical. "New sources of utility revenue" means tapping into the forces of third-party creativity and innovation to enable harvesting the value inherent in a highly intelligent and transactive distribution grid. Third-parties and utility partners can bring much needed creativity to the electric grid if they can gain meaningful access to opportunities to serve customers in new ways. The growth of third-party provision of services to ultimate customers and the relative value of those services as a fraction of total utility revenues are key metrics for implementing this lever.

Q. What do you find in the Company's PST Plan that reflects reliance on these levers of reform in planning and execution?

A. The Company's PST Plan includes a study relating to Advanced Metering Functionality ("AMF"); several demonstration and pilot projects related to energy storage, electric vehicle charging stations, and other technologies; and proposals for Performance Incentive Measures that would increase Company earnings for performance that would not necessarily reflect improvements. The Company's PST Plan lacks a foundational comprehensive grid modernization plan. The Company proposes preapproval of the demonstration and pilot projects, and revenue recovery for investments and expenses through a PST Tracker, separate and apart from base rates. The Company proposes to own most of the investments it plans under pilot and demonstration projects. The Company does not apply the Rhode Island BCA method comprehensively and includes no value for avoided distribution costs. The Company's rate case application, filed in Docket No. 4770 does not include a multi-year rate plan, but does include rate design changes that would make it less economic for customers to participate in DER and DER-related services, and fails to reflect PST outcomes as a risk-reducer that could lower required returns on common equity. The Company's PST Plan offers limited recognition of the potential and benefits of animating third-party markets for DER, with no clear intention to comprehensively plan for third-party or customer engagement.

Q. What are your overall conclusions regarding the Company's PST Plan proposals?

A. The Company proposes to take some preliminary steps toward Power Sector Transformation, but these steps forward are outweighed by backward steps in Docket No. 4770, by the lack of a vision of third-party market growth and customer engagement, and by the lack of comprehensive and coherent plans for grid modernization and transformation. The Company proposal includes steps that, with modification, should be undertaken, but it is not yet a plan for transformation. The Commission has demonstrated leadership and wisdom in conducting Docket 4600 and the Power Sector Transformation process and provided clear guidance to the Company. The Company was an active participant in Commission proceedings under Docket 4600,[5] the development of the Docket 4600-A guidance document,[6] and the PST Report.[7] Unfortunately, in its filing in this proceeding and the accompanying Docket No. 4770, the Company fails to meet its burdens and responsibilities. For reasons described in this testimony, I therefore recommend that the Commission find that the Company has failed to submit an adequate and reasonable Power Sector Transformation filing. In light of that failure, I offer a series of specific recommendations for adoption by the Commission relating to steps that the Company should take in order to make progress toward Power Sector Transformation.

Q. What are your specific recommendations in this proceeding?

A. My detailed recommendations should be read in conjunction with my recommendations in Docket No. 4770, especially as relates to the allowed return on equity for the

---

[5] Docket 4600: Stakeholder Working Group Process Report to the Rhode Island Public Utilities Commission, at Ch. 3 (Apr. 5, 2017).
[6] PUC Guidance Document, Docket No. 4600-A (Sep. 6, 2017).
[7] *Rhode Island Power Sector Transformation - Phase One Report to Governor Gina M. Raimondo - November 2017* (PST Report).

Company. I offer recommendations relating to revenue requirements and revenue recovery, performance incentive mechanisms and return on equity, benefit-cost analysis, and planning and third-party market support. My specific recommendations are:

- The Commission should reject the Company's proposal to establish a "PST Tracker" for recovery of PST-related revenue requirements.
- The Commission should reject all the Company's proposals for pre-approval of spending in this proceeding except for modified amounts related to the AMI study, the GIS system upgrades, and the System Data Portal improvements.
- The Commission should approve foundational grid modernization investments by the Company, including the AMI study in an amount not to exceed $1.057 million and amortized over three years, the GIS system upgrades in an amount not to exceed $427,000 and amortized over three years, and $205,000 in added revenues for the rate year for the Systems Data Portal improvements, all as recommended by Division witnesses Ballaban and Effron in Docket No. 4770.[8]
- Any spending approved by the Commission in this docket should be integrated into the Company's rate case in Docket No. 4770 or deferred for recovery in a subsequent general rate case.
- The Commission should adopt the Division's recommendations[9] regarding Performance Incentive Mechanisms ("PIMs") for the Company, including the provisions for sharing benefits with customers, and for reporting. These changes should be applied during the next rate year.

[8] Prefiled direct testimony of Division witnesses Ballaban and Effron in Docket No. 4770 at 57.
[9] Prefiled direct testimony of Division witnesses Woolf and Whited in Docket No. 4770.

- The Commission should direct the Company to develop additional PIMs in a number of areas. These include: (1) customer electric bill reductions and bill volatility reductions, (2) customer engagement levels with third-party services and technologies, (3) customer energy "literacy" and engagement with electricity usage information, and (4) timely execution of competitive procurement and other business processes. These efforts should include stakeholder engagement and be integrated with other PIM-related process recommendations.
- The Commission should direct the Company to examine each of its approved PIMs under Power Sector Transformation, and under all programs where it has approved incentive mechanisms for creation of negative (revenue-reducing) adjustments as well as positive adjustments.
- Until such time as just and reasonable negative adjustments are established, and for so long as only upward, company-wide earnings adjustments are in place, the Commission should approve a return on equity at the low end of reasonable estimations, and no higher than 8.00%.
- The Commission should direct the Company to develop a proposal for rates of return on common equity for investments that are differentiated by functional category. The Commission should also direct the Company to begin to track and classify costs at a level of granular detail sufficient to support these functional categorizations. In addition to a base system function, separate functional categories should include, at a minimum, (1) grid modernization and AMF, (2) DER interconnection and enablement, (3) transportation electrification, (4) low-income customer engagement

with DER, (5) electric energy storage, and (6) energy efficiency and energy management.

- The Commission should initiate a proceeding to evaluate the role and operation of revenue decoupling in the context of performance-based rate making, and whether decoupling mechanisms and adjustments are just and reasonable in a transformed power sector. This evaluation may justify a Commission request for legislative study.
- The Commission should reject the Company proposal to use the best-fit/least-cost methodology for any purposes relating to evaluating investments or spending under the PST.
- The Commission should require the Company to use a societal discount rate in evaluating PST investment and spending proposals.
- The Commission should direct the Company to develop values for avoided distribution costs for use in BCAs relating to PST and other investments and spending.
- The Commission should direct the Company to file updated BCAs that fully incorporate Docket 4600 guidance, including values for avoided distribution costs for use in BCAs relating to PST and other investments and spending by no later than December 1, 2018.
- The Commission should order the Company to develop, in conjunction with Staff, Division, and stakeholders, a comprehensive grid modernization plan (GMP). The GMP should be developed in conjunction with the conduct of the AMI study and should adhere to the recommendations of Division witness Booth in Docket No. 4770.

- The Commission should direct the Company to reevaluate its proposals relating to electric transportation, electric heat, electric storage, and solar generation to support low-income customers in order to maximize the opportunity for third-party market participation.

REVENUE REQUIREMENTS AND RECOVERY

Q. Did you review the Company's proposals for spending and revenue recovery relating to its proposed PST Plan?

A. Yes. The Company proposes to use a process similar to its ISR process for PST-related investments. The Company therefore proposes that PST cost recovery operate separately and differently from cost recovery for its base distribution business. For purposes of this testimony, I follow the lead of Division witness Woolf in referring to this mechanism as the Company's proposed "PST Tracker."[10]

Q. Do you agree with the Company's proposal to establish the PST Tracker?

A. I do not support the PST Tracker proposal and recommend that the Commission reject the Company's proposal in favor of the recovery of prudent investments and expenses through base rates. In this regard, I accept and endorse the Division's findings, conclusions, and recommendations regarding the PST Tracker.[11]

Q. Does the Company seek pre-approval for PST-related investments and spending?

A. Yes. The Company seeks pre-approval of PST-related investments and, as explained, recovery of these investments and spending through the PST Tracker. Consistent with my endorsement of the Division's position on the PST Tracker, I recommend disapproval of

[10] Prefiled direct testimony of Division witness Woolf in Docket No. 4770 at 22.
[11] *Id.* at 22-32.

any pre-approval of recovery of PST-related spending and investments except for the modified amounts related to the AMI study, the GIS system upgrades, and the System Data Portal improvements (which should be recovered through base rates).

Q. What are the amounts of the grid modernization spending proposed by the Company with which you agree?

A. Like the Division,[12] I recommend that the Commission approve foundational grid modernization investments by the Company, including the AMI study in an amount not to exceed $1.057 million and amortized over three years, the GIS system upgrades in an amount not to exceed $427,000 and amortized over three years, and $205,000 in added revenues for the rate year for the Systems Data Portal improvements, all as recommended by Division witnesses Ballaban and Effron in Docket No. 4770[13]. Any spending ultimately approved by the Commission should be integrated into the Company's rate case in Docket No. 4770 or deferred for recovery in a subsequent case.

PERFORMANCE INCENTIVE MECHANISMS AND RETURN ON EQUITY

Q. What should performance incentives accomplish in the Power Sector Transformation process?

A. The Company's proposal should include performance incentives, and, as appropriate, penalty mechanisms, that (1) directly connect the Company's electricity revenues to its achievement on performance metrics, and (2) break the direct connection between allowed revenues and investment levels.

[12] *Id.*
[13] Prefiled direct testimony of Division witnesses Ballaban and Effron in Docket No. 4770 at 57.

Q. What kinds of Company activities should be subject to performance-based compensation?

A. The ultimate goal should be a transformation of the utility business model from a "cost-plus" model to a model where all or substantially all of the Company's revenues are directly related to performance in meeting Rhode Island's goals for the energy services sector. On the way to that ultimate goal, and ideally, the Company would have developed and offered in this proceeding proposals to support a comprehensive set of Performance Incentive Mechanisms (PIMs) consistent with the spirit and objectives of the Commission's PST process and guidance. The PST Report provides a detailed menu of PIM options and a range of reporting or "scorecard" metrics.[14] Ultimately, the Company should assume responsibility, as reflected in its profitability, for improving the affordability and reducing the volatility of customer bills, for successfully engaging all customers and especially low-income customers in the benefits of DER, and for supporting a growing and vibrant third-party market for DER-related technologies and services.

Q. Do the Company's proposals in Docket No. 4770 reflect its commitment to a transformation of the business model?

A. As my testimony in that proceeding shows, the Company's proposal in Docket No. 4770 fails to internalize the opportunity and goals of the PST process. Most notably, the Company proposes an unreasonably high return on common equity as part of its rate of return proposal.

[14] PST Report at pp. 24-29.

Q. Do the Company's PIM proposals in this docket properly and adequately reflect the goals and objectives of the PST process?

A. In my opinion, the Company's PIM proposals are deficient in several respects.

Q. Did you review the testimony of Division witnesses Woolf and Whited in Docket No. 4770 regarding the Company's proposed PIMs?[15] If so, what are your findings and conclusions regarding that testimony?

A. I agree with the findings, conclusions, and recommendations of Division witnesses Woolf and Whited relating to the Company's PIM proposals. In the interest of administrative efficiency, I would endorse and adopt that testimony as my position in this matter.

Q. Do you also agree with the process and reporting recommendations from the Division relating to PIMs?

A. Yes. I also endorse the Division's PIMs recommendations relating to process and reporting.

Q. Do you recommend any additional PIMs that the Company and stakeholders should consider for development?

A. Yes. I recommend that the Company begin working with stakeholders to develop PIMs relating to customer bill reductions and bill volatility reductions, customer engagement levels with third-party services and technologies, customer energy literacy and engagement with energy usage information, and timely execution of competitive procurement and other business processes.

Q. Why do you offer these additional recommendations for PIMs?

[15] Prefiled direct testimony of Division witnesses Woolf and Whited in Docket No. 4770.

A. Core to the success of grid modernization and Power Sector Transformation is active and continued engagement by customers with the modern grid. These critical outcomes must be measured and when the Company is successful in improving the metrics, it should be rewarded. In addition, the Company should work aggressively to foster the development and successful operation of third-party markets for DER-related products and services, avoiding competition with that market. The Company's ability to foster market growth should also be the subject of measurement and reward.

Q. Both the Division and the Company recommend asymmetrical PIMs that include a reward component and not the potential for penalties. Do you agree that PIM adjustments should be positive (reward) only?

A. I understand the arguments by the Company[16] and the Division[17] that at the early stages of transforming the business model and because of the risk of perverse incentives, positive-only asymmetrical PIM adjustments are reasonable. At this time, I can support such an incentive structure, but believe that this approach requires two complementary components. First, the Division's recommendation for the use of "dead bands" within which no incentive is earned is absolutely essential.[18] These dead bands help reduce the risk that incentives will be paid for business-as-usual behaviors and outcomes. Second, the asymmetrical incentives result in a significant transfer in risk away from the Company to customers. As a result, and to encourage the Company to make progress in achieving incentivized outcomes, the Commission should set the baseline return on

---

[16] *See* Company response to NERI 4-9.
[17] Prefiled direct testimony of Division witnesses Woolf and Whited at p. 26.
[18] *See, e.g., id* at p. 29.

common equity at the low end of reasonable estimates. In my view, and in accordance with my testimony in Docket No. 4770, the return on common equity should be set at a level no higher than 8.00%.

Q. Do you have any other recommendations relating to negative PIM adjustments?

A. Yes. I believe that negative performance adjustments are reasonable where the Company has operated under a performance-based model for some time and both the Company and the Commission have gained experience and confidence in the operation of the mechanisms and related outcomes. This may well be the case already in regard to energy efficiency. For that reason, I recommend that the Commission direct the Company to begin to develop symmetrical PIM proposals and a schedule for implementation of positive and negative earnings adjustments in the future.

Q. Do you have any other recommendations relating to PIMs?

A. I recommend that the Commission also initiate a proceeding or other effort to evaluate the role and operation of revenue decoupling in the context of performance-based rate making, and whether decoupling mechanisms and adjustments are just and reasonable in a transformed power sector. I am concerned that the simultaneous award of both decoupling adjustments and performance-based earnings enhancements both over-compensates the Company and denies or at least significantly delays customers' realization of the benefits of productivity improvements. The results of this evaluation may justify a Commission request for legislative study.

Q. Do you have any additional recommendations relating to the allowed return on common equity?

A. I recommend that the Commission also direct the Company to develop a proposal for rates of return on common equity for investments that are differentiated by functional category. In addition to a base system function, separate functional categories should include, at a minimum, (1) grid modernization and AMF, (2) DER interconnection and enablement, (3) transportation electrification, (4) low-income customer engagement with DER, (5) electric energy storage, and (6) energy efficiency and energy management. This approach will allow more precise targeting and adjustment of performance incentives and a greater structural break between revenues and rate base not directly created to advance performance objectives. In practical terms, more "risky" or novel initiatives could earn higher potential returns, while less risky functions would not be excessively incentivized. The Commission should order the Company to submit this proposal, after a stakeholder engagement process, by Dec. 1, 2019.

Q. Please explain how differentiation by function would work?

A. I recommend that the Commission direct the Company to initially prepare the proposal. The basic idea is to replace "across the board" return on equity base values and incentive adjustments with values that vary according to the kinds of functional categories that I listed and the Commission's PST priorities, respectively. This functionalization will ensure fair return on invested capital, but more precise determination of the implied rate of return by the nature of the underlying activity. For example, base system activities, such as maintaining and replacing poles is a relatively low-risk activity facing only indirect competitive challenges over the near term from the emerging growth of DER markets. On the other hand, deploying technology to support demand response, for example is a relatively new and more risky endeavor that may merit a higher return. In addition, efforts to incentivize DER-enabling technologies and systems merit PIMs—enhanced earnings to signal transformation priorities. Under current approaches, such PIMs are applied to the entire revenue requirement—meaning they are both diluted and applied to behavior that may not warrant the incentive. Differentiation of ROE by function allows both fairer setting of the rate of return and more precise targeting of incentives in order to accelerate Power Sector Transformation.

BENEFIT-COST ANALYSIS

Q. Did you review the Company's approach to benefit-cost analysis ("BCA") in its development of its proposed PST Plan?

A. Yes. The Company used two approaches in evaluating the cost-effectiveness of its proposals in the PST Plan. For DER-enabling investments, the Company proposes a best-fit/least-cost assessment. For DER investments, the Company proposes a Rhode Island-specific BCA. In my opinion there are several flaws in the Company's proposed approaches. I also review the testimony of Division witnesses Woolf and Whited on the issue.[19]

Q. Do you agree with the Division's findings, conclusions, and recommendations regarding the Company's approach to BCA? If so, what are your recommendations?

A. I agree with and endorse the testimony of Division witnesses Woolf and Whited on the Company's approach to benefit-cost assessment. I therefore recommend that the Commission reject the Company proposal to use the best-fit/least-cost methodology for

[19] *Id.* at pp. 84-96.

any purposes relating to evaluating investments or spending under the PST, require the Company to use a societal discount rate in evaluating PST investment and spending proposals, direct the Company to develop values for avoided distribution costs for use in BCAs relating to PST and other investments and spending, and direct the Company to file updated BCAs by no later than December 1, 2018.

PLANNING AND THIRD-PARTY MARKET SUPPORT

Q. Did you review the Company's grid modernization proposals that are intended to serve as a foundation for the Company's PST Plan?

A. Yes. While the Company's PST proposal is labeled a "plan," it is really a grouping of proposed components and is not even undergirded by a comprehensive Grid Modernization Plan ("GMP"). I am extremely disappointed that after all the process that has occurred since the Company's ill-considered distributed generation access fee proposal in Docket No. 4568, including the many hours and rate payer-funded Company participation in Docket Nos. 4600 and 4600-A, and the PST process, the Company has not yet presented a coherent and comprehensive plan, even for the grid modernization foundation of PST. Nonetheless, I find that the components proposed in the DER-enablement section of the Company's PST Plan are, in fact, the kinds of things that the Company must undertake to establish a foundation for the work it must do.

Q. Did you review the testimony of Division witness Booth relating to the Company's grid modernization proposals filed in Docket No. 4770?[20]

[20] Prefiled direct testimony of Division witness Booth in Docket No. 4770.

A. Yes. I agree with Division witness Booth in calling for the Company to develop a comprehensive Grid Modernization Plan:

> "My evaluation does not reveal deficiencies in the Company's proposed components, but rather notes the absence of a comprehensive Grid Modernization Plan ("GMP") which demonstrates both the short and long term initiative programs envisioned in the modern grid by National Grid as it progresses through its own admitted "on-going journey". I do not dispute the Company has presented a meaningful initial step. What I do find lacking is the presentation of a comprehensive and fully assessed GMP as the required next step in order that the PUC, Division and stakeholders have a view of the future modern grid, its components, and its cost/benefit, so there is not a random and uncoordinated series of programs and technologies initiated on top of the essential foundational investments. Such a GMP would outline the details, technologies, and timeline for implementation, and a plan should be completed before the foundational enabling programs are fully implemented. This second step should have a date certain for completion in the next year, which will appropriately coordinate with coordination of the proposed AMI study and inclusion in the next 3 year rate plan if such a plan is adopted. A GMP will not only provide the long range vision, but will also mitigate the potential for early obsolescence and unnecessary redundancy. This GMP should not delay the investments the Company has proposed here, but should be in place to guide any second stage of investments as well as any integration with a potential advanced metering infrastructure."[21]

Q. Do you agree with any of the other recommendations offered by Division witness Booth?

A. Yes. I agree with the findings, conclusions, and recommendations offered by Division witness Booth in Docket No. 4770. In the interests of administrative economy, I endorse and do not repeat more of Mr. Booth's testimony in this proceeding. I also endorse the revenue requirement implications of Mr. Booth's recommendations as ultimately reflected in the testimony of Division witnesses Ballaban and Effron, also in Docket No. 4770.[22]

---

[21] *Id.* at p. 12.
[22] Prefiled direct testimony of Division witnesses Ballaban & Effron in Docket No. 4770.

Q. What is your assessment of the Company's PST Plan proposal regarding impacts on third-party market development and DER market animation?

A. One major area of deficiency in the Company's PST Plan proposal is its lack of a coherent vision and support for the development of self-sustaining third-party markets for DER-related products and services. This result is also a consequence of the lack of an integrated plan for grid modernization and the lack of a unifying and integrative vision for the Company's progress toward transformation of its business model. It is also a result of the Company's incentive, which is to generate return on equity based on its own investments.

Q. In what areas are you most concerned about the lack of a vision of third-party market development from the Company?

A. I generally accept that the Company will pursue a procurement model for developing foundational grid modernization capabilities. The Company also appears to recognize that in some cases, third-party procurement will offer some protection against technological obsolescence of smart grid infrastructure. However, the Company's DER proposals related to electric transportation, electric heat, electric storage, and solar generation to support low-income customers are overwhelmingly biased toward a utility ownership model. The Company offers no clear plan or standard for how it will approach "build or buy" decisions regarding DER and fails to make a compelling case why it should self-build DER resources at all.[23] The Company does not evaluate the obsolescence risks, or the market development issues associated with its DER proposals.

[23] *See* Company response to NERI 5-1. The Company cites the demonstration-stage nature of its proposals, its lower-cost of capital, and generally asserts that it is serving under-served market segments, among other reasons, for its self-build proposals.

There is a significant risk that the Company's actions will actually frustrate third-party market development and animation.

Q. In light of the Company's failure to make an adequate case for self-build approaches and to articulate and adopt a plan for third-party market development and animation, what do you recommend?

A. I believe it is necessary for the Commission to take an extremely clear and firm position on utility self-build and third-party market development and animation. The idea of bringing new revenue streams, innovation, and choice to the electricity service function is absolutely core to successful Power Sector Transformation. To that end, the Commission should deny any pre-approval of the Company's DER proposals and the creation of a PST Tracker mechanism. In addition, the Commission should instruct the Company that self-build DER spending will be found imprudent absent a compelling showing from the Company that third-party solutions are impractical, unreasonable, less-economic, and not supportive of Power Sector Transformation.

Q. Based on the lack of a vision, plans, and support for third-party DER products and services market development in the Company's PST Plan proposal, what do you recommend?

A. In addition to my recommendation that the Company's DER-related investments and spending not be pre-approved and that the Commission reject the Company proposal for a PST Tracker, I also recommend that the Commission direct the Company to reevaluate its proposals relating to electric transportation, electric heat, electric storage, and solar generation to support low-income customers in order to maximize the opportunity for third-party market participation. In addition, I recommend that the Commission invite the

Company to develop a specific PIM focused on third-party market animation to accompany a revised PST Plan.

Q. Can you provide a specific example of how the Company can and should advance third-party market development for DERs?

A. Rhode Island has already done a huge amount of work studying, understanding, and proposing a course for the development and advancement of a strategy the renewable thermal technologies market, including in the *Renewable Thermal Market Development Strategy* ("RT Market Strategy") developed by the Office of Energy Resources.[24] The Company acknowledges this policy and market work, as well as related Rhode Island initiatives and guidance in its PST Plan, Chapter 6, its proposed "Electric Heat Initiative."[25] The Company states that it proposal "invests in an evaluation, measurement & verification framework linked to incentives. Complementing this investment, the Electric Heat Initiative invests in *utility* marketing, *utility* financing, and other market development programs."[26] What is not represented at all in the Company proposal is a strategy for third-party market development, specific endorsement and application of the recommendations of the RT Market Strategy, characterization of the third-party market and the optimal strategies for growing that market, or any evidence of the use of stakeholder or market study process to validate the Company's proposals. The Company does not condition proposed incentives for or expressly chart a course for how its Electric

---

[24] Meister Consultants Group, "Rhode Island Renewable Thermal Market Development Strategy," prepared for R.I. Office of Energy Resources (Jan. 2017), available at: http://www.energy.ri.gov/documents/Efficiency/Rhode%20Island%20Renewable%20Thermal%20Market%20Development%20Strategy%20January%202017.pdf.
[25] Company PST Plan proposal at Ch. 6.
[26] *Id.* at p. 8 (emphasis added).

Heat proposal will realize the benefits of increased electric heat identified in the RT Market Strategy, including $193 million in net benefits, the creation of 165 jobs, and reduction of 2.2 million tons of CO_2 emissions.[27] So, while the Company proposal addresses an important issue and would arguably result in positive outcomes, it lacks foundation in a strategy aimed at advancing broader Power Sector Transformation objectives.

Q. Does this conclude your testimony?

A. Yes.

[27] RT Market Strategy at pp. 4-5.