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April 4, 2014

**By Hand Delivery**

Ms. Kristi Izzo, Secretary  
New Jersey Board of Public Utilities  
44 S. Clinton Avenue, 9<sup>th</sup> Floor  
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**Re: In The Matter of the Petition of Public Service Electric and Gas  
Company for Approval of the Energy Strong Program  
BPU Dkt. Nos.: EO13020155 and GO13020156**

Dear Secretary Izzo:

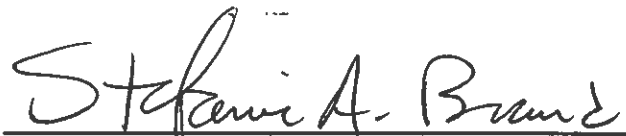
Enclosed please find an original and ten (10) copies of the Initial Brief being filed on behalf of the Division of Rate Counsel ("Rate Counsel") in connection with the above referenced matter. **Rate Counsel's Initial Brief contains information subject to a protective agreement, therefore the confidential pages have been redacted and are being filed separately.**

A copy of the redacted version of the Initial Brief is being sent to all parties on the service list by electronic mail. A copy of the confidential sections of the brief are being provided electronically only to those parties that have signed the confidentiality agreement. Rate Counsel will provide a hard copy of the redacted brief to any party requesting same.

Secretary Kristi Izzo  
April 4, 2014  
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We are enclosing one additional copy of the materials transmitted. Please date stamp the copy as "filed," and return in the stamped self-addressed envelope. Thank you for your consideration and assistance.

Respectfully submitted,

A handwritten signature in black ink that reads "Stefanie A. Brand". The signature is written in a cursive style with a large initial 'S' and a long horizontal stroke at the end.

Stefanie A. Brand  
Director

SAB/lg

c: Commissioner L. Fordaliso (via hand delivery)  
Service List (via electronic mail)

**I/M/O the Petition of Public Service  
Electric and Gas Company for  
Approval of the Energy Strong  
Program  
BPU Docket No. EO13020155 and  
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I/M/O THE BOARD'S REVIEW OF ) BPU Docket Nos. EO13020155 and  
PETITION OF PUBLIC SERVICE ) GO13020156  
ELECTRIC & GAS COMPANY FOR )  
APPROVAL OF THE ENERGY )  
STRONG PROGRAM )

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INITIAL BRIEF ON BEHALF OF THE  
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PUBLIC VERSION

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## **I. PRELIMINARY STATEMENT**

Anyone living in New Jersey in October 2012 knows what a devastating event Superstorm Sandy was. Throughout the state, millions of homes and businesses lost power, in many cases for weeks. Certainly New Jersey's ratepayers have an interest in making sure that we are more prepared for and better able to withstand future storms. However, we cannot lose sight of the fact that Superstorm Sandy was an extreme event. While we may see more frequent storms that were once considered unusual, a storm like Sandy is still going to be a very rare occurrence. We also have to accept that it is not possible to eliminate outages in a storm of that magnitude. If we fool ourselves into thinking we can "harden" our system to eliminate outages in a storm like Sandy, we will squander resources that our state simply cannot afford.

The key is to balance the risks and results so that we fund those measures that are most likely to bring about real benefits when the next storm comes. We must focus our spending to minimize the rate impacts but maximize effectiveness in addressing likely storm conditions. This requires careful analysis and an honest assessment of the risks and likely results. PSE&G has not done that here. As set forth in this brief, the Company's petition was hastily put together. It sought unprecedented amounts of funding with little analysis of whether its investments would bring about real improvements. Projected costs were over-inflated and included large contingencies due to the early stage at which the Company was seeking approval. Projected benefits were uncertain, and when they appeared insufficient to justify the costs, the Company jettisoned traditional cost-benefit analysis for a "break-even" approach that would always yield a positive result.

The Board cannot ignore the actual facts that have been presented in this record. While the record does show an interest on everyone's part to improve our resiliency, the record also shows that PSE&G has not put together a program that will reasonably meet that goal. The Company is asking for pre-approval of projected costs and a leap of faith that the wish-list put together by the Company's engineers should prevail over the conclusions of several different independent engineers that recognized better and often cheaper alternatives. The Company is also asking for an extraordinary amount of money that may, at best, reduce electric outage hours by a mere 39%.

At its heart, however, this case is really about an alternative method of funding PSE&G's capital investments. PSE&G has always been free to do any work it believes is necessary to ensure reliability. Indeed, it has an obligation to do so. However, the Company maintains that this work is not necessary for it to provide safe, adequate and proper service. It does not seek to invest its money or that of its shareholders in this work. Instead, it asks the Board to order contemporaneous recovery from ratepayers and, over the course of the program, increase electric distribution rates up to 20% and gas distribution rates up to 16.5%. It seeks an alternative cost-recovery mechanism that is a "bonanza" for shareholders, bringing them an excessive return on equity and approximately \$2.5 billion in profits. It's also an alternative cost-recovery mechanism that is inconsistent with the long-standing requirement established by our Supreme Court that recovery of funds must have a nexus to a base rate case. In re Industrial Sand Rates, 66 N.J. 12 (1974). The proposed cost recovery mechanism is unfair, unnecessary and illegal.

In sum, PSE&G has simply failed to present to the Board an approvable proposal. While the Board could, on this record, order a smaller, more effective and fairer program that meets legal standards, the Energy Strong Program proposed by the Company is not it. The Energy Strong Program was built on a shaky foundation of unsupported engineering proposals and unsubstantiated projected costs. It seeks to vastly increase plant in service with insufficient benefits to justify the rate increases that will result. It seeks to do so by shifting the risks to ratepayers and providing windfalls for shareholders. Based on the record that has been exhaustively created by the parties, the Company's proposal should be rejected.

## II. STATEMENT OF THE FACTS AND PROCEDURAL HISTORY

On February 20, 2013, Public Service Electric and Gas Company (“PSE&G” of the “Company”) filed a petition with the New Jersey Board of Public Utilities (“BPU” or the “Board”) seeking expedited approval to implement and administer the Energy Strong Program (“Energy Strong” or the “Program”) and to approve an associated cost recovery mechanism.

PSE&G is seeking approval of \$2.609 billion in Energy Strong Program investments across its electric and gas service territory over the next five years; the investments include \$1.703 billion for electric and \$906 billion for gas delivery. The petition asserts that the investments will harden electric and gas infrastructure to make them less susceptible to damage from extreme wind, flying debris and water damage and better able to withstand the impacts of hurricanes and other severe weather conditions. The estimated total cost of the 10-year Energy Strong Program is \$3.9 billion. PSE&G is seeking recovery of the costs through the implementation of the Energy Strong Adjustment Charge (“ESAC”). In support of the Energy Strong petition, the Company attached the testimonies of Jorge L. Cardenas (P-2) and Stephen Swetz (P-3). Mr. Swetz’s schedules attached to his February 20th testimony were marked “Data Provided for Illustrative Purposes Only”. The Company subsequently decided not introduce Mr. Swetz’s February 20th testimony into evidence.

On March 20, 2013, the Board issued an Order<sup>1</sup> commencing a generic

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<sup>1</sup> I/M/O the Board’s Establishment of a Generic Proceeding to Review Costs, Benefits and Reliability Impacts of Major Storm Event Mitigation Efforts, Dkt. No. AX13030197 and I/M/O the Board’s Review of the Petition of Public Service Electric and Gas Company for Approval of Energy Strong Program, BPU Dkt. Nos. EO13020155, GO13020156, Establishment of a Proceeding, (March 20, 2013)(“Generic Storm Event Mitigation/Energy Strong March 2013 Order”).

proceeding to determine possible ways to protect New Jersey’s utility infrastructure to withstand the effects of future Major Storm Events and invited all regulated utilities to submit comprehensive proposals for infrastructure upgrades as specified in the January 23 Order<sup>2</sup>. In that March 20, 2013 Order, the Board ruled that the Energy Strong petition filed by PSE&G “failed to provide the required detailed estimates of costs, benefits, and rate impacts” and failed “to adequately distinguish storm hardening and mitigation efforts from normal operations and maintenance, reliability projects, and programs necessary to maintain safe, adequate and reliable service.” Id., p. 4. It also directed PSE&G to provide additional data and analysis and instructed Board Staff (“Staff”) to evaluate and respond to PSE&G’s petition and subsequent submittals. Id., pp. 4-5.

Also on March 20, 2013, PSE&G filed (1) the supplemental revised testimony of Stephen Swetz (P-3Rev), (2) a proposed form of public notice; (3) proposed tariffs sheets; (4) electronic workpapers; and (5) Schedule SS-ES-8 (revised)(P-3REV-1).

On April 15, 2013, pursuant to the Board’s directive in the Generic Storm Event Mitigation/Energy Strong March 2013 Order, Board Staff propounded 58 discovery requests on PSE&G seeking a detailed explanation of costs, benefits, and rate impacts of each mitigation measure proposed in the Energy Strong petition.

On May 1, 2013, PSE&G supplied responses to Staff requests relating to the Energy Strong Program. In an Order issued on June 21, 2013, the Board adopted Staff’s recommendations that PSE&G “move forward at this time with measures proposed

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<sup>2</sup> I/M/O the Boards Review of New Jersey's Utilities' Response to Hurricane Irene, BPU Dkt. No. EO11090543, Order Accepting Consultants’ Report and Additional Staff’s Recommendations and Requiring Electric Utilities to Implement Recommendations, (January 23, 2013)(“Irene January 2013 Order”)



within the Energy Strong Station Flood and Storm Surge Mitigation sub-program.”<sup>3</sup> And that PSE&G begin the “investigative and planning stages for the storm damage mitigation of substations...in order of the priority identified in the ‘Substation Flood and Storm Surge Mitigation’ charts.” Id. In addition, Staff recommended that PSE&G initiate preliminary engineering and planning work. PSE&G was directed to provide the Board with monthly status reports “starting 30 days from the effective date of this Order.” Id. In that same Order, the Board designated Commissioner Fiordaliso as the presiding commissioner to rule on motions and modify schedules if needed. On July 10, 2013, an in-person prehearing conference was held before Commissioner Fiordaliso.

Motions to Intervene were filed by: Local Union 94 of the International Brotherhood of Electrical Workers, Local 855 of the United Association of Journeyman and Apprentices of the Plumbing and the Pipefitting Industry, Local 601 of the Utility Workers Association of America, and Local 153 of the Office and Professional Employees International Union (collectively known as the “Unions”); New Jersey Large Energy Users Coalition (“NJLEUC”); AARP; Sierra Club – New Jersey Chapter and the New Jersey Environmental Federation (collectively, the “Environmental Intervenors”) International Union of Operators and Engineers, Local 825 (Local 825) ; New Jersey Laborer’s-Employers Cooperation and Trust (NJLECET); Environmental Defense Fund (EDF); Ferreira Construction Co., Inc. (Ferreira); Cooper’s Ferry Partnership (CFP); J. Fletcher Creamer & Son (Creamer), Inc. and Bloom Energy Corporation. By Orders dated July 2, September 30 and October 24, 2013, the presiding Commissioner granted

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<sup>3</sup> I/M/O the Board’s Review of the Petition of Public Service Electric and Gas Company for Approval of the Energy Strong Program, Dkt. Nos. EO13020155 and GO13020156, Order- Request for Specific Action and Additional Information, (June 21, 2013), p. 3. (“Energy Strong- June 2013 Additional Information Order”)

intervention status to the Unions; NLEUC; AARP; and denied intervention but granted participant status to Local 825; NJLECET; EDF; and Ferreira. The presiding Commissioner also denied CFP; Creamer and Bloom Energy intervention and participant status.

On August 2, 2013, a Pre-hearing Order<sup>4</sup> was issued. Among other things, the Prehearing Order set the dates for the public hearings, established a procedural schedule for the completion of discovery and for the filing of testimony, and established a schedule for evidentiary hearings.

In accordance with the Energy Strong- June 2013 Additional Information Order, PSE&G submitted monthly status reports in July and August on its progress with respect to the station mitigation sub-program. The reports explained the procedural steps needed to identify qualified engineering firms to “verify PSE&G’s internal engineering analysis.” PSE&G also reported that they had begun site surveys of the stations.

On October 7, 2013, PSE&G supplied a response to Rate Counsel’s discovery request (RCR-ECON-5 Supp’1) which was a report authored by Peter Fox-Penner and William P. Zarakas of the Brattle Group (referred to as the “Brattle Report”). According to the response, the report was said to contain “a cost-benefit analysis of the proposed Energy Strong filing”. RCR-ECON-5 (Supp’1).

On October 8, 2013 PSE&G submitted its monthly status report on the station mitigation sub-program and reported that they issued purchase orders and anticipated having the final engineering reports by November, 2013.

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<sup>4</sup> I/M/O the Board’s Review of the Petition of Public Service Electric and Gas Company for Approval of the Energy Strong Program, Dkt. Nos. EO13020155 and GO13020156, Prehearing Order, (August 2, 2013) (“Energy Strong- August 2013 Prehearing Order”)

On October 23, 2013 a telephone conference call was held with the parties to discuss discovery and scheduling issues. Pursuant to the presiding Commissioner's directive, Rate Counsel and PSE&G submitted revised procedural schedules. AARP filed a letter in support of Rate Counsel's schedule. In an Order<sup>5</sup> dated November 1, 2013, a revised schedule was adopted.

On October 28, 2013, Rate Counsel, NJLEUC, AARP filed their direct testimony. Rate Counsel filed the testimonies of: Ms. Andrea Crane (RC-1), Dr. David Dismukes (RC-2/RC-2A), Mr. Edward McGee (RC-4/RC-4A), Mr. Charles Salamone (RC-5/RC-5A) and Mr. Matthew Kahal (RC-7). NJLEUC filed the testimony of Mr. Jeffrey Pollock (NJLEUC-1) and AARP filed the testimony with supporting schedules of Ms. Barbara Alexander (AARP-T-1/AARP-T-1A). On October 29, 2013 PSE&G produced the supporting documents and schedules to the Brattle Group Report. Pursuant to the Board's Energy Strong- June 2013 Additional Information Order, PSE&G filed the Engineering Reports on November 15, 2013.

On November 27, 2013, PSE&G filed the rebuttal testimony of Jorge L. Cardenas (P-2R), Bradford D. Huntington (P-6), Paul Ronald Moul (P-5) and Dr. Peter Fox-Penner (P-4). On January 10, 2014, Rate Counsel filed the supplemental direct testimonies of Dr. David Dismukes (RC-3/RC-3A) and Charles Salamone (RC-6/RC-6A) and AARP filed the supplemental testimony of Barbara Alexander (AARP-T-2). PSE&G filed the supplemental rebuttal testimonies of Jorge L. Cardenas (P-2SR) and Dr. Peter Fox-Penner (P-4SR) on January 31, 2014.

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<sup>5</sup> I/M/O the Board's Review of the Petition of Public Service Electric and Gas Company for Approval of the Energy Strong Program, Dkt. Nos. EO13020155 and GO13020156, Order- Adopting Revised Schedule (November 1, 2013) ("Energy Strong- November 2013 Revised Schedule")

A total of six public hearings were held in PSE&G's service territory on: September 16, 2013 at 3:30 p.m. and 6:30 p.m. in Newark, on September 19, 2013 at 3:30 p.m. and 6:30 p.m. in New Brunswick and October 7, 2013 at 3:30 p.m. and 6:30 p.m. in Cherry Hill.

Evidentiary hearings were held at the Board's office on the following dates: February 25, 26, 27, March 3 and 4, 2014.

At the close of evidentiary hearings a briefing schedule was set. Initial briefs are due on April 4, 2014 and reply briefs are due on April 25, 2014.

## ARGUMENT

### III. PSE&G HAS FAILED TO MEET ITS BURDEN OF ESTABLISHING THAT ITS PROPOSED ENERGY STRONG PROGRAM WILL RESULT IN SIGNIFICANT IMPROVEMENT IN STORM RESILIENCY IN A PRUDENT AND COST-EFFECTIVE MANNER

#### A. PSE&G Has the Burden of Demonstrating that its Proposal is Just and Reasonable and In Accordance with the Standards Established by the Board for Major Storm Mitigation Proposals.

It is fundamental that New Jersey public utilities must provide safe, adequate and proper service to their customers at rates that are just and reasonable. N.J.S.A. 48:2-21, N.J.S.A. 48:2-23. In regulating utilities, the Board must take careful account of the rights of both utilities and their ratepayers. As the New Jersey Supreme Court has explained, “if the rate for the service supplied be unreasonably low it is confiscatory of the utility’s right of property, and if unjustly and unreasonably high ... it cannot be permitted to inflict extortionate and arbitrary charges upon the public. In re Industrial Sand Rates, 66 N.J. 12, 23-24 (1974).

A utility’s service obligation includes the responsibility to take reasonable measures to mitigate the impact of major storms, but this obligation does not give utilities a license to expend unlimited resources on storm mitigation and recover the costs from ratepayers. The requirement to provide service at “just and reasonable” rates presupposes diligent management. A utility is entitled only to those rates which will allow it to conduct its operations “under efficient and economical operation ....” Public Service Coordinated Transport v. State, 5 N.J. 196, 225 (1950). “Good company management is required; honest stewardship is demanded; diligence is expected; careful, even hard,

bargaining in the marketplace and at the negotiation table is prerequisite.” In re Board's Investigation of Telephone Companies, 66 N.J. 476, 495 (1975).

It is also fundamental that a utility seeking to increase its rates bears the burden of proving that the rate increase it seeks is just and reasonable. N.J.S.A. 48:2-21. In this proceeding PSE&G is seeking approval of a program that would result in significant and continuing rate increases for the Company’s electric and gas customers. The Company bears the burden of demonstrating that its proposed storm mitigation measures, and the resulting rate increases, are consistent with “efficient and economical operation.” Public Service Coordinated Transport, supra, 5 N.J. at 225. In other words, it is PSE&G’s burden to show that the costs of its proposed Energy Strong Program, and the rate increases that would necessarily result from approval of the program would be just and reasonable.

The Board has recently affirmed that storm mitigation measures, and specifically those proposed by PSE&G, must meet the same standards as any other utility investments. The Board’s generic Order following its investigation of the responses of the State’s electric utilities to Hurricane Irene and the October 11, 2011 snowstorm included directions to the utilities to develop substation flood mitigation plans. These plans were required by the Board to include consideration of the effectiveness and costs of several alternative measures. Irene January 2013 Order. In addition to these general requirements, PSE&G specifically was required to complete a flood mitigation study and submit a proposal for mitigation measures “which shall include a cost benefit analysis and a work plan.” Id.

The Board later addressed the same issue in this docket, finding that the originally filed Petition in this matter was deficient because it “fail[ed] to provide the required detailed estimates of costs, benefits and/or rate impacts to allow for adequate consideration of the measures proposed by its petition at this time.” Generic Storm Event Mitigation/Energy Strong March 2013 Order.

Under fundamental regulatory principles and as specifically ordered by the Board for PSE&G, it is the Company’s burden to demonstrate that its proposed Energy Strong Program will produce benefits commensurate with its costs and, that it reflects the most efficient and cost-effective alternatives. They must also demonstrate that the rate impacts will be just and reasonable and that its proposed extra-ordinary cost recovery mechanism is necessary. If PSE&G is replacing aging infrastructure that would have to be replaced in the normal course of business as a traditional capital improvement, it should be funded through the normal course in base rates. As discussed in the following sections, PSE&G has failed to demonstrate that the Energy Strong proposal meets any of these standards.

**B. PSE&G Has Not Demonstrated That the Energy Strong Program Will Create Benefits Sufficient to Justify Its High Cost.**

**1. High Cost and Rate Impacts of Energy Strong**

The proposed Energy Strong Program requires enormous expenditures, and will have very significant impacts on the Company’s electric and gas ratepayers. The Company is proposing to spend approximately \$1.7 billion on its proposed electric Energy Strong sub-programs, and approximately \$900 million on the proposed gas sub-programs. *P-1*, par. 10. As explained by Rate Counsel witness Andrea C. Crane, PSE&G is proposing substantial additions to both its electric and gas plant-in-service. The Company’s gross electric plant-in-service as established in the Company’s last base

rate case was \$6.016 billion. The first five years of the Energy Strong Program, which are the subject of the current Petition, would increase electric plant-in-service by over 28%. For the gas utility, the initial five years of the program would increase the current \$4.746 billion plant-in-service by approximately 19%. *RC-1*, p. 19.

The proposed investments would result in substantial rate increases for PSE&G's ratepayers. By 2019, the Company's rates for electric distribution service would increase by approximately \$220 million, over 20 percent of current distribution rates, and gas distribution rates would increase by about \$110 million, or over 16.5 percent. *RC-1*, p. 24; *T145:L17 to T147:L13* (Feb. 26, 2014). Moreover, ratepayers would continue to pay for the Energy Strong Program for many years to come—through 2058 for electric and 2080 for gas. *T146:L1-4* (Feb. 26, 2014). The average rate increase over the useful lives of the electric and gas assets would be about \$155 million, on a combined electric and gas basis. *T146:L5-10* (Feb. 26, 2014). Over the useful lives of the electric assets, the Company would collect an incremental \$4.78 billion from ratepayers, of which \$1.4 billion represents net-of-tax return on equity for the Company's shareholders. *RC-1*, p. 19. Over the useful lives of the gas assets, the Company would collect \$3.31 billion, including \$1.06 billion in net-of-tax return on equity. *RC-1*, p.20.

It is clear that the Energy Strong Program would produce substantial benefits for PSE&G's shareholders. As Ms. Crane testified in her oral surrebuttal, "this program is really a bonanza for shareholders and the financial markets know that." *T150:L24 to T151:L2* (Feb. 26, 2014). It is far less clear that the proposed Energy Strong investments would benefit ratepayers.



## **2. Lack of Demonstrated Benefits**

PSE&G has failed to demonstrate that the costs of the Energy Strong would be either reasonable or prudent. Neither the initial Petition nor subsequent submissions by the Company contain any meaningful analysis of the benefits ratepayers are supposed to receive from this enormously expensive program.

### **a. Deficient Planning Process**

The Company's initial Petition and supporting testimony included summaries of the proposed Energy Strong investments, with only general descriptions, and no quantification, of the purported benefits of each proposed sub-program. To give just one example, in the prefiled Direct Testimony of PSE&G witness Jorge Cardenas the only description of the benefit of the proposed "Strengthening Pole Infrastructure" program is as follows: "Power outages will undoubtedly occur when falling trees and limbs knock down power lines, but the proposed investments [in Strengthening Pole Infrastructure] will reduce the frequency of such outages and enable PSE&G to restore service more quickly than otherwise would occur." *P-1*, par. 37; *P-2*, p. 16. Such bald assertions are clearly insufficient to demonstrate that the proposed programs should be approved. As noted by Rate Counsel witnesses Charles P. Salamone, P.E. and David E. Dismukes, PhD, and as acknowledged in a Company discovery response, the Company did not perform any formal cost-benefit analyses of either the electric or gas elements of the Energy Strong proposal before the petition was filed. *AARP-3*, *RC-5A*, p. 13, *RC-2A*, p. 44.

No evidence in the record reflects that the development of the Energy Strong proposal included any analysis of whether the proposed investments were cost-justified

and cost-effective. Indeed, there is scant documentation of what criteria and standards, if any, were applied to develop the Energy Strong projects. None of the Energy Strong projects were vetted through the Company's normal budgeting process. *RC-5A*, p. 11-12, *RCR-E-86*, *RCR-E-110*. According to a Company response to an AARP discovery request, management's communications concerning the "initiation and direction" of the Company's proposals were "primarily oral," and the only written communication was a January 11, 2013 e-mail from Jorge Cardenas to a "team" of several other PSE&G employees. *AARP-III-11*, *AARP-III-11(REVISED)*.

Mr. Cardenas' e-mail stated that "[w]e have been asked to prepare a filing which addresses 'infrastructure hardening,' which filing was "to be completed by January 18<sup>th</sup>," one week from the date of the e-mail. *AARP-III-11(REVISED)* p. 2 of 2. As noted by AARP witness Barbara R. Alexander, while the Energy Strong filing was not completed within the originally contemplated one-week time frame, the entire process of developing this \$2.6 billion proposal apparently took place between January 11, 2013 and early February, 2013, when the proposal was considered by the Company's Board of Directors. *T136:L17 to T137:L3* (Feb. 27, 2014).

With regard to the content of the electric portion of the filing, the recipients of Mr. Cardenas' e-mail were directed to consult two documents. First, the recipients of the e-mail were directed to "dust off" materials that had been prepared for a "report to the governor's office in reference to stations impacted and the cost to repair and also costs to pre-empt the situation from occurring again." *AARP-III-11(REVISED)* p. 2 of 2. That "report to the governor's office" consisted in its entirety of three pages of charts identifying Superstorm Sandy-related damage to PSE&G's electric system and related

repair and replacement costs. *AARP-IV-2, T75:L21 to T77:L10* (March 6, 2014). Second, Mr. Cardenas suggested that his team consult a previously circulated report from the Edison Electric Institute (“EEI”), which was said to provide “a framework for types of actions a utility can take to harden its facilities.” *AARP-III-11(REVISED)* p. 2 of 2.

There is even less documentation of the process followed to develop the proposed gas distribution system investments. The January 11, 2013 e-mail and the two referenced documents addressed only electric system investments. Mr. Cardenas testified on cross-examination that, after a list of electric-system projects had been prepared, “it became obvious to me and asset management that this request should include gas facilities because they also had an impact.” *T84:L7-21* (Feb. 28, 2014). There are no documents that describe the process of developing the proposed gas projects, and no documents prior to the Petition itself that reflect the outcome of that process. *T85:L5-13 & T86:L10-22* (Feb. 28, 2014).

The process that led to the filing of the Energy Strong Petition afforded neither the time nor the direction from management to conduct any meaningful analyses of the cost-effectiveness of the proposed Energy Strong investments. This process did not reflect the diligent attention to efficiency and economy that is required of New Jersey utilities. Public Service Coordinated Transport, 5 N.J. at 197, In re Board's Investigation of Telephone Companies, 66 N.J. at 476.

**b. Absence of Cost Benefit Analysis**

The Company provided limited information on the cost-effectiveness of the Energy Strong Program only after the fact, in response to discovery requests issued following the Generic Storm Event Mitigation/Energy Strong March 2013 Order.

Initially, the Company provided a discovery response that included a table ranking electric sub-programs based on estimates of the reduced outages and outage durations in the event of a storm similar to Superstorm Sandy. *RC-5A*, p. 13, *S-PSEG-ES-2*, *RCR-E-2*. Later the Company provided similar information for Hurricane Irene and the October 2011 snowstorm *RC-5A*, p. 14, *S-PSEG-ES-2*, *RCR-E-131*.<sup>6</sup> For the proposed gas system investments, the Company provided cost estimates, but no quantitative assessment of benefits. *RC-2A*, p. 44, *RCR-ECON-5*, *S-PSEG-ES-40*, *S-PSEG-ES-42*, *S-PSEG-ES-46*.

Mr. Salamone examined these discovery responses and concluded that elements of the proposed Energy Strong electric program are “only cost effective under the extreme conditions of Superstorm Sandy based on their own calculations.” *RC-5A*, p. 20.

Mr. Salamone converted the data presented by the Company into benefit cost ratios, so that if benefits exceed costs then the ratio would be greater than one.<sup>7</sup> *RC-5A*, p. 15, Schedule CPS 5. Mr. Salamone found that the Company’s data results in a benefit/cost ratio of 8.6 for a future Superstorm Sandy like event. *RC-5A*, p. 16. Under conditions similar to Hurricane Irene and the 2011 October snowstorm, Mr. Salamone found that the proposed Energy Strong electric program is not cost effective by the Company’s own calculation, with program benefit–cost ratios of 0.7 and 0.2 respectively. *RC-5A*, p. 16. Some elements of Energy Strong, such as the Company’s proposed Pole Strengthening and Backyard Pole programs, do not appear cost-effective under any circumstance, including Superstorm Sandy conditions. *RC-5A*, p. 16.

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<sup>6</sup> Hurricane Irene storm and the 2011 October snowstorm resulted in outages of 872,492 customers and 636,898 customers, respectively. In contrast, Superstorm Sandy affected 2,014,516 customers. *RC-E-7*.

<sup>7</sup> The Company used a cost to benefit ratio in its analyses. Thus, if benefits exceed costs, then the ratio would be less than one. Conversely, in a benefits–cost presentation of results, such as the conversion performed by Mr. Salamone, when benefits exceed costs, then the ratio would be greater than one.

Moreover, under any of the three storm scenarios, the proposed Energy Strong electric programs would only provide relief to a limited number of electric customers. The Company calculated that even if all of its proposed Energy Strong Programs were implemented, customer outage durations would be reduced by 62,714,213 hours, or 39% of customer outage hours.<sup>8</sup> This means that there would still be approximately 99,781,420 customer outage hours for a Superstorm Sandy-like type of event.<sup>9</sup> RC-5A, p. 17. From another perspective, even if all elements of its Energy Storm electric program were implemented and accepting all of PSE&G's assumptions, an event like Superstorm Sandy would reduce the number of customers who would suffer outages by 325,606, yet still result in 1,688,910 customer outages.<sup>10</sup> RC-5A, p. 17.

The benefits of the proposed Energy Strong electric projects are even more tenuous for lesser storm events. In its sensitivity calculations, PSE&G calculated that its proposed Energy Strong electric program would reduce outages by 3.7 million customer outage hours, or 22%, for a Hurricane Irene type event, and would reduce customer outage hours by 379,000, or only about 3%, for a 2011 October snowstorm type event.<sup>11</sup> RC-5A, p.18. Thus, the proposed Energy Strong electric program would only be cost effective in the event of a Superstorm Sandy type event.

### **c. Brattle Report Failure to Remedy Deficiencies in Filing**

#### **i. Improper after-the fact analysis**

It was not until October 7, 2013 that the Company provided a report authored by Peter S. Fox-Penner and William P. Zarakas of The Brattle Group (the "Brattle Report")

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<sup>8</sup> RCR-E-2

<sup>9</sup> RCR-E-6

<sup>10</sup> RCR-E-2

<sup>11</sup> RCR-E-131

which addressed both the electric and gas components of the Energy Strong Program. *RCR-ECON-5 (SUPP'L), P-4, Schedule PFP-ES-2.*<sup>12</sup>

Initially, it is important to note that the Brattle Report does not reflect any analysis actually undertaken by PSE&G during the time it was developing the Energy Strong proposal. Dr. Fox-Penner and Mr. Zarakas were not retained to conduct their analysis until April 19 2013, two months after the petition was filed, the report was not submitted until October 7, nearly eight months after the petition was filed. *RCR-G-POL-118, p. 9. P-4, p. 1.* Dr. Fox-Penner acknowledged on cross-examination that all of the analyses presented in the Brattle Report were performed after the fact. He and Mr. Zarakas did not participate in, and did not provide any input to, the process of developing the Energy Strong proposal. *T85:L11 to T86:L2.* (Feb. 27, 2014). As noted by Dr. Dismukes, “[t]he Brattle Report appears to simply offer justification for the Company’s massive spending proposal well after the program [was] conceptualized, developed, and offered to the Board for approval.” *RC-2A, p. 45.* This type of after-the-fact study should be viewed with caution as justification for investments of the magnitude proposed in the Energy Strong filing. *Id.*

## **ii. Inadequate “Break Even” Approach**

In addition, the Brattle Report does not provide the type of cost-benefit analysis that the Board directed the Company to provide. A traditional cost-benefit analysis would first clearly define the specific events the investments are intended to defend against and the specific system performance problems resulting from such events that are

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<sup>12</sup> The same report that was provided in the discovery response, but with different pagination, was later made part of the record as the referenced Schedule accompanying Dr. Fox-Penner’s prefiled Rebuttal Testimony. The report will be referred to hereinafter as the Brattle Report, using the pagination as it appears in Dr. Fox-Penner’s Schedule.

sought to be remedied, and would then proceed to an analysis of the costs and benefits of alternative means of achieving the specific objectives sought to be achieved by the investments. *T127:L17 to T128:L12* (March 6, 2014), *T250:L19-25* (Feb. 27, 2014). This is the type of analysis contemplated by the Board when it directed PSE&G to develop “detailed” cost-benefit data so as to allow the Board to evaluate the “measures proposed by [PSE&G’s] petition ....” Generic Storm Event Mitigation/Energy Strong March 2013 Order at 4.

Instead of the detailed assessments ordered by the Board, the Brattle Report presented a so-called “break even” analysis, which, as described by Dr. Fox-Penner, “estimates the cumulative duration of mitigated outages that would produce value to customers sufficient to cover the cost of PSE&G’s investments in Energy Strong.” *P-4*, p. 9-10. The Brattle Report purports to estimate the value of the Energy Strong investments by multiplying, (1) PSE&G’s high-level estimates of the number of customer outage hours that would be avoided if the investments included in each of the Energy Strong sub-programs were in place during a so-called “system-wide outage” by (2) estimates of the subjective value customers place on mitigating outages, referred to as the “value of lost load” or “VOLL.” *Brattle Report*, p. viii-ix.

The report does not, however, estimate the probabilities that specific weather events will occur, or the likelihoods that ratepayers will see benefits commensurate with their investments. Instead, the report calculates “the cumulative duration of mitigated outages associated with major weather events that would have to occur” in order for the Company’s ratepayers to “break even” on the costs they will incur as a result of the proposed investments. *Id.*, p. ix. In other words, the report determines how many hours

of electric and gas outages ratepayers will have to avoid in order to “break even” on the costs of the Energy Strong investments, but does not determine the likelihood that the “break even” point will ever actually be reached. *Id.* The report concludes that ratepayers would “break even” on the proposed electric system investments in the event of a 3.08-day “system wide outage” affecting all of the Company’s electric distribution customers. *Brattle Report*, p. xi-xii. For the proposed gas system investments, the report determines a “break even” point of 7.08 days. *Brattle Report*, p. xiii-xiv.

The Brattle Report’s approach does not provide the information required by the Board because, in order for ratepayers to “break even,” the extreme storm event or events required to produce the assumed level of outages would have to occur in the future with 100 percent certainty. *RC-2A*, p. 45-46. Without an assessment of the probability of the event actually occurring, the Brattle Report, unlike a true cost-benefits analysis, does not tell the Board whether the proposed Energy Strong investments are beneficial or not. *T192:L24 to T193:L1* (Feb. 27, 2014). As Dr. Dismukes explained at the evidentiary hearing:

With a break-even analysis, you don't have a result. Everything is really a scalable proposition on just how long it actually takes to pay off the program. It doesn't tell you meaningfully what is it that you need to base that actual decision on costs and benefits for.

*T193:L1-6* (Feb. 27, 2014).

As noted by Rate Counsel witness Mr. Salamone, the Brattle Report’s analysis is premised upon a “system wide outage” comparable to that produced by Superstorm Sandy, an event never before experienced in PSE&G’s 100-year operational history. *RC-6A*, p. 6-7. By simply assuming that this type of event will occur, the Company is assigning to ratepayers the risk that the event will not occur. Essentially, the Company is



making a physical investment as insurance against outages resulting from extreme storm events, but instead of ratepayers paying a premium that reflects the actual risk of the event occurring, ratepayers are paying a premium that reflects the full cost of the event. *T208:L6-10* (Feb. 17, 2014), *RC-2A*, p. 45-46. By way of analogy, if an individual with a one percent chance of dying in the next five years purchases a one million dollar five-year term life insurance policy, that individual would be willing to pay premiums over the five years totaling up to \$10,000, or one percent of one million dollars. The Company's proposal assumes the individual would be willing to pay a premium reflecting a 100% chance of dying within five years, and therefore should be willing to pay premiums totaling one million dollars over 5 years. *RC-2A*, p. 45.

“Break-even” analyses have their proper uses. As Dr. Dismukes explained, because a “break-even” analysis does not yield a “yes or no” answer but places different options on a scale that allows for comparison, it can be useful for prioritizing among multiple options. However, a break-even analysis does not provide a proper basis for up or down decisions to embark on capital investments as large and costly as are being proposed by PSE&G. *T210:L19-23* (Feb. 27, 2014). Even Dr. Fox-Penner is unaware of any state regulatory commission orders in which “break-even” analyses have been used to make decisions on electric or gas reliability or resiliency investments. *RC-14 (RCR-G-POL-124)*, *T36:L3-14* (Feb. 27, 2014).

The Brattle Report states that a traditional cost-benefit analysis was not performed because the probabilities of future severe weather events affecting PSE&G's customers “are not presently available.” *Brattle Report*, p. ix. This is not a valid justification. Insurance companies and others involved in offering and securing insurance products

typically assess such probabilities on a regular basis. *P-2A*, p. 46. Further, utility planners and utility regulators frequently must deal with multiple uncertainties such as, for example, future fuel prices and customer usage. *T207:L12-20* (Feb. 27, 2014). As Dr. Dismukes observed in his oral surrebuttal testimony, “it’s a bit of a cop out” for the Company not to even attempt an analysis that defines the events the proposed investments are intended to defend against, and assesses their effectiveness in addressing these events. *T207:L6-11 & T207:L21 to T208:L2* (Feb. 27, 2014).

### **iii. Questionable Probability “Break-Even” Outage Levels Will Occur**

Despite the Brattle Report’s assertions that it is not possible to assess the probabilities of severe weather events, in his prefiled direct testimony Dr. Fox-Penner asserted that it was “reasonable to believe” that the “break even” outage levels will occur. Specifically, Dr. Fox-Penner further stated that “it seems reasonable to assume that the PSE&G service area will be struck by five or six storms over the course of the next 10 to 20 years which together produce outages equivalent to that experienced following Superstorm Sandy.” *P-4*, p. 13. However, there is no basis for the Board to adopt Dr. Fox-Penner’s opinion on the likelihood of future weather events. He is not a climatologist, and he and his co-author did not perform any quantitative analysis to support such opinions. *Id.*, *T29:L7 to T30:L13* (Feb. 27, 2014). When asked on cross-examination about the basis for his estimate. Dr. Fox-Penner simply asserted that he reviewed “many documents ... that contain numbers that were the basis for this statement.” *T30:L14-17* (Feb. 27, 2014). However, the record is devoid of any clear explanation of how Dr. Fox-Penner arrived at the quantification contained in his prefiled testimony.

While the Brattle Report states its “break even” points in terms of days of “system-wide outages,” the underlying calculations are based on avoided customer outage hours. For the electric Energy Strong Program benefits are calculated based on the assumption that the proposed electric system investments will result in the avoidance of 15.3 million customer-hours per day, representing approximately 30 percent of the 51.7 million hours of interruptions that would result from a 24-hour outage affecting all of the Company’s electric customers. *RC-3*, p. 10-11, *Brattle Report*, p. x. The 3.08-day “break even” point thus is equivalent to approximately 47.12 million (3.08 times 15.3 million) customer hours of avoided outages. *RC-3*, p. 12. As shown in Dr. Dismukes’ prefiled Supplemental Direct Testimony, from 2003 through 2012 PSE&G experienced, on average, 21.03 million customer hours of major storm related outages per year, including the unprecedented level of outages that occurred in 2012 due to Superstorm Sandy. *RC-3*, p. 11 & Sch. DED-S-1. If 2012 is excluded, the average is 5.67 million customer hours per year. *Id.* Assuming the electric Energy Strong investments would reduce these outage levels by 30 percent, it would take 7.5 years to reach 47.12 million customer hours of avoided outages if 2012 is included, and 27.7 years if 2012 is excluded. *RC-3*, p. 12.

Notably, the Brattle Group did not conduct its break-even analysis using weather events amounting to less than system-wide outages, such as Hurricane Irene and the 2011 October Snowstorm.<sup>13</sup> *RC-6A*, p. 7. Mr. Salamone testified that “under non-Superstorm Sandy major events, the avoided customer outage hours are greatly reduced and this would lead to a conclusion that it may be many years, possibly exceeding the lifetime of the equipment, before the cumulative values used to justify the Energy Strong Program are met.” *RC-6A*, p. 7. Mr. Salamone testified that smaller events similar to Hurricane

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<sup>13</sup> RCR-E-181

Irene and the October snowstorm are “a more realistic scenario” and recognition of this would show that the proposed Energy Strong electric program is less cost-effective than portrayed in the Brattle Group’s analysis. *RC-6A*, p. 7.

Moreover, the level of mitigated electric outages assumed to be achieved in the event of future major storm events is based entirely on engineering estimates provided to the Brattle Report’s authors by PSE&G. *Brattle Report*, p. ix. These estimates are set forth in two single-page charts, which were made part of the record as AARP exhibits. *AARP-19(RCR-E-2*, p. 2 of 3), *AARP-20 (RCR-E-2*, p. 3 of 3), *T56:L13 to T57:L16, T67:L17-23 & T70:L3-9* (March 6, 2014). According to Company witness Mr. Cardenas, these charts are entirely self-contained; there are no supporting workpapers or calculations beyond the information reflected in the charts. *T67:L24 to T68:L2* (March 6, 2013). Thus, as noted by Mr. Salamone, the engineering estimates underlying the Brattle Report’s quantifications of benefits are no more than “judgmental assumptions” that “have not been quantified in any studies or substantiated by any independent assessment.” *RC-6A*, p. 6. Further, Mr. Salamone found that “the input assumptions of both costs and benefits can radically affect the outcome of the analysis.” *RC-6A*, p. 11. If PSE&G’s engineering estimates prove to be inaccurate, it is unclear how long it would actually take to reach 47.12 million customer hours of avoided electric outages. The result maybe a “break-even” point far longer in duration, which according to Mr. Salamone, would make the Energy Strong investments “an uneconomic and impractical use of ratepayer funds as a means to mitigate the effects of typical major storm events.” *RC-6A*, p. 11.

Despite the fact that the Brattle Groups assumptions were based on information from PSE&G, Mr. Salamone found that the Brattle Group’s analysis differed from the Company’s analysis in several ways. They used different assumptions regarding the duration of substation system-wide outages; the number of customers impacted by changing overhead distribution standards from 4kV to 13kV; and the value of lost load (“VOLL”) for the small commercial and industrial sector (\$314.63/kWh for the Company versus \$49.17/kWh for the Brattle Group)<sup>14</sup> *RC-6A*, p. 8. Of these differences, Mr. Salamone noted particularly the significance of the VOLL estimate for small commercial and industrial customers. Mr. Salamone found that the Company’s calculation of the benefits of the Energy Strong Program was \$23.7 billion based on a VOLL of \$314.6/kWh, and \$4 billion based on a VOLL of \$49.17/kWh.<sup>15 16</sup> *RC-6A*, p. 9. This change in a single input value yielded a \$20 billion reduction in calculated Energy Strong benefits, thereby demonstrating that the purported value of benefits for the Energy Strong Program is very susceptible to the assumption made for the VOLL. *RC-6A*, p. 9. Moreover, Mr. Salamone testified that the VOLL is “an unsubstantiated number which could vary significantly from customer to customer depending upon their particular circumstances.” *RC-6A*, pp. 10-11.

For the proposed gas system investments, it is even less plausible that the “break even” levels of mitigated outages will ever occur. The Brattle Report estimates that the Company’s gas distribution customer will “break even” if 664,937 out of the Company’s approximately 1.8 million natural gas customers avoid a cumulative total of 7.08 days of

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<sup>14</sup> RCR-E-169

<sup>15</sup> *RC-5A*, Schedule CPS-6

<sup>16</sup> RCR-E-228

major storm-related outages.<sup>17</sup> *RC-3*, p. 5, *Brattle Report*, p. 77, 79-80. The gas “break even” point is equivalent to 113 million customer hours of avoided outages (i.e., 7.08 days times 24 hours in a day times 664,937 customers). *RC-3*, p. 5-6 & n. 12.

Based on historical information, it is highly unlikely that the equivalent of 7.08 full days of mitigated outages for 664,937 customers will ever be reached. The Brattle Report itself acknowledges that only “[a]pproximately 6,800 customers lost gas service due to meter failures and flooding within PSE&G’s service territory during Superstorm Sandy.” *Brattle Report*, p. xii. This is only a little more than one percent of the 664,937 customers that PSE&G claims will avoid outages as a result of the proposed natural gas system investments. Moreover, the Company has historically experienced only minimal severe storm related natural gas system outages over the past 30 years. As noted by Dr. Dismukes, “Excluding Tropical Storm Floyd (September 1999), for which reliable data is unavailable, the Company reports that 33,758 [natural gas distribution] customers have lost service due to storms.” *RC-3*, p. 13. Based on the Company’s reported 4-day average duration for a natural gas outages, “it would take over 453 years for the proposed [natural gas distribution] programs to ‘break even,’ even if the proposed improvements are successful in completely insulating the Company’s natural gas distribution system from any effects of severe storm events.” *Id.*<sup>18</sup>

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<sup>17</sup> The 664,937 customers represent all of the customers served by the metering and regulating stations, LNG and LPG stations, and gas mains and services proposed to be “hardened” in the gas Energy Strong Program. *Brattle Report*, p.77.

<sup>18</sup> Although the Brattle Report did not present separate “break even” analyses for each Energy Strong sub-program, the report recognizes that one of the two gas sub-program, the utilization pressure cast iron main replacement program, has a “significantly longer” break-even outage duration than the sub-program addressing meter and regulating stations. *Brattle Report*, p. xiv. Thus, the report appears to acknowledge the possibility that this sub-program may not be justifiable as a storm damage mitigation program.

#### iv. Failure to Discount Future Benefits

Even if the “break even” levels of mitigated outages are assumed to occur, the Brattle Report’s calculations of the resulting benefits to ratepayers are not reliable for several reasons. First, both the electric and gas “break even” calculations improperly fail to discount the value of benefits that could occur many years in the future. *RC-3*, p.13-15. The Brattle Report uses the 7.01 percent weighted cost of capital from PSE&G’s last base rate case to discount the costs of the proposed Energy Strong investments. *RC-3*, p. 13, *Brattle Report*, p. 64 n. 41. Benefits, however, are not discounted. As stated in the report:

In comparing benefits to costs, we adopt the following simplified approach: We use the current year as the basis for estimating benefits associated with PSE&G’s Electric ES sub-program investments. We compare the resulting benefits to the PV [present value] of investment costs.

*Brattle Report*, p. 63 n. 40. The report thus “essentially assum[es] that the dollar value of benefits that will arise in the future are worth the same amount to ratepayers as if they had occurred today.” *RC-3*, p. 14-15. In other words, assuming a ratepayer would be willing to pay \$50 to avoid a 10-hour outage tomorrow, according to Dr. Fox-Penner that same ratepayer should be willing to pay the same \$50 today to avoid an outage occurring one year, five years, or “any number of years in the future.” *T45:L13 to T47:L17* (Feb. 27, 2014). As Dr. Fox-Penner acknowledged, this assumption is the mathematical equivalent of assuming that all of the benefits of the Energy Strong Program occur in the first year of the program. *T48:L3-8* (Feb. 27, 2014).

The Brattle Report’s failure to discount the value of future benefits is contrary to the fundamental economic principle that “a dollar today does not have the same value as

a dollar in the future.” *RC-3*, p. 13. The Brattle Report attempts to justify its biased discounting approach by arguing that the Energy Strong benefits are not subject to discounting because they are societal or public goods akin to clean air, clean water or national defense. *Brattle Report*, p. 63 n. 40. *RC-3*, p. 18. As explained by Dr. Dismukes, the stated purpose of the program is to improve service quality for ratepayers, and if it produces some limited societal benefits, that is not a justification for treating the entire program a “public good.” *RC-3*, p. 19. Furthermore, as has been recognized by many regulatory commissions and other government agencies, it is improper in any event to use different discount rates for costs and benefits. *RC-3*, p. 20-24. A proper cost-benefit analysis would recognize that the purported benefits occurring years, and perhaps decades in the future are not worth the same to ratepayers than benefits occurring today.

#### **v. Uncertain and Flawed VOLL Estimates**

The report also uses uncertain and flawed methodologies to calculate the value to ratepayers of avoiding an outage of a particular duration. As noted above, the Brattle Report calculates these values by multiplying PSE&G’s estimates of mitigated customer hours of outages by estimates of customers’ “value of lost load” or “VOLL.” For the proposed electric investments, the Brattle Report uses VOLL estimates from a report issued by the Lawrence Berkeley National Laboratory (the “Berkeley Report”). *Brattle Report*, p. x-xi. As explained in the prefiled direct testimony of AARP witness Ms. Alexander, these estimates are based on the results of 28 surveys conducted by ten major electric utilities, in which utility customers were asked how much they would be willing to pay to avoid an interruption of service. *AARP-T-1*, p. 27-29. The reliability of the survey methodology for estimating VOLLs has been called into question because of



evidence that customers' statements about what they would be willing to pay for something may not accurately reflect what they will actually pay. *Id.*, p. 30-31. *AARP-17, T210:L10 to T212:L13*. Also, as noted by Ms. Alexander, the Berkeley study should be viewed with caution in the present context for a number of reasons, including the fact that the study did not include any New Jersey ratepayers, and the fact that the survey instruments have been deemed "confidential" and are not available for independent review. *AARP-T-1*, p. 32. Also, it is far from clear that the Berkeley study results are applicable to the Energy Strong proposal, in which ratepayers have no guarantee that they will experience avoided or shortened outages, but are being asked to pay over an extended period of time for the possibility that they will benefit from the program. *AARP-T-1*, p. 32-33. Survey-based VOLL estimates may have legitimate uses, but, as Dr. Dismukes explained, "they have their problems and limitations that I think commissions need to be mindful of." *T213:L14-19* (Feb. 27, 2014). While some regulatory commissions have expressed interest in VOLL studies, such studies should be viewed with caution as a basis for a large infrastructure program. *T213:L20 to T214:L19* (Feb. 27, 2014).<sup>19</sup>

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<sup>19</sup> In this regard, the Board should reject a suggestion by Dr. Fox-Penner that the Rutgers University Center for Energy, Economic and Environmental Policy ("CEEPP") supports the use of VOLL estimates to evaluate the claimed benefits of the Energy Strong Program. *T36:L18 to T37:L19* (Feb. 27, 2014). While a draft Power Point presentation regarding a "stylized model" developed by CEEPP to assess costs and benefits of Combined Heat and Power (*RC-15*) refers to the Berkeley study, it does not endorse its use. *RC-15*, slide 18. Moreover, the model includes a "Disclaimer" that states:

The numerical assumptions used in this spreadsheet are for illustration purposes and are not final assumptions. The Stylized Model is not intended, and should not be used as the basis for investment decisions. Users are cautioned not to rely on the Stylized Model's results as a prediction of future outcomes and that actual events may differ significantly from those produced by the Stylized Model.  
*RC-16, RC-17*, p. 1, *T44:L11 to T45:L7* (Feb. 27, 2014).

#### **d. Conclusion – Lack of Benefits to Justify Costs**

For all of the reasons stated above, it is clear that PSE&G has failed to justify the high costs of its Energy Strong proposals. PSE&G's proposal in effect, asks ratepayers to buy an insurance policy without knowing either "the dollar amount that you are insuring for" or "what [the] payout is going to be, if you have to make a claim on that insurance."

*T208:L10-19* (Feb. 27, 2014). As Dr. Dismukes explained, "that shifts the risk."

*T209:L2-3* (Feb. 27, 2014).

Who bears the risk if it doesn't happen, then what? What if you're defending to a standard that may not occur? What if the performance that the Company envisions doesn't materialize in the way that it has been characterized?

*T209:L5-11* (Feb. 27, 2014). The Energy Strong Program places those risks on ratepayers who would "have to bear those costs for the next 30 to 40 to 60 years in some instances."

*T209:L1-13* (Feb. 27, 2014). As Dr. Dismukes observed, "most people wouldn't enter into an insurance policy of that nature." *T208:L19-20* (Feb. 27, 2014). The Board should not compel ratepayers to do so.

#### **C. The Energy Strong Program as Proposed Will Have A Negative Net Economic Impact**

PSE&G asserts that, in addition to the claimed direct benefits to PSE&G's electric and gas distribution customers, the proposed Energy Strong Program will benefit the New Jersey economy overall. According to the Petition and Mr. Cardenas' supporting testimony the Company estimated that the proposed Energy Strong investments and expenditures would create in excess of 900 full-time equivalent ("FTE") jobs each year for the first five years of the program. *RC-2A*, p. 14, *P-I*, par. 114, 115; *P-2*, p. 42. The Company developed its estimate by using simple formulas based on the amount of

expenditures required to create one FTE job. For the natural gas program, the Company estimated 1,812 FTE jobs over five years. For the electric program, the Company estimated 2,838 FTE jobs over five years. These two amounts, added together and divided by five, result in estimated 930 FTE jobs per year. *RC-2A*, p. 15 & n. 21, *RCR-ECON-1*.

The Company's analysis provides an incomplete picture of the overall impact of the Energy Strong Program on the New Jersey economy. As Rate Counsel witness Dr. Dismukes explained in his prefiled direct testimony, large capital investment programs such as the proposed Energy Strong investments can have both positive and negative impacts. *RC-2A*, p. 13. The capital investments and expenditures associated with the program will likely lead to employment opportunities in New Jersey in the construction, craft trade, engineering and other industries. These jobs in turn can have ripple effects or "multiplier" effects because the jobs directly created by the program lead to other jobs associated with supporting activities ranging from support services such as accounting and delivery service, down to retail sales made to the workers employed in the direct and supporting jobs. *RC-2A*, p. 13 & Schedule DED-3.

In addition to these positive impacts, there are negative impacts that result from the fact that the program is not free, and must be paid for through increases in utility rates. The rate increases necessary to fund the proposed Energy Strong Program would reduce household income and increase costs to business and industries. Some classes of market participants would experience reduced income and increased costs without a corresponding direct benefit, thus reducing the funds available to them to expend on goods and services. This, in turn, leads to negative "multiplier" effects in the economy,

similar to the way program-related expenditures create positive effects. *RC-2A*, p. 13-14 & Schedule DED-3.

The simple economic impact analysis reflected in PSE&G's initial filing has three basic deficiencies: (1) it does not account for "leakages" associated with out-of-state purchases, (2) it does not consider the negative impacts associated with the Energy Strong rate increases, and (3) it does not address the uneven distribution of costs and benefits across different sectors in the New Jersey economy. *RC-2A*, p. 15-16.

As Dr. Dismukes explained in his prefiled direct testimony, "economic leakage occurs when a portion of the expenditures occurs outside of the relevant geographic area, in this case New Jersey. For example, assuming total capital expenditures for a project are \$100 million and 30 percent of the total is expended outside of the state, then \$30 million can be thought of as leakage. Both the direct and ripple impacts of the \$30 million will occur out of state. *RC-2A*, p.16.

PSE&G's analysis of positive benefits did not include an adjustment for leakage, in effect assuming that all of the Energy Strong expenditures would occur in New Jersey. *RC-2A*, p. 16-17. This is an unreasonable assumption because, given the size and relatively short duration of the proposed program, it is unlikely that all of the required goods and services can be procured in state. In fact, the Company itself has acknowledged that a large share of the necessary equipment and services will be purchased from out-of-state firms. *RC-2A*, p. 17, *RCR-ECON-29 through RCR-ECON-46*. Dr. Dismukes prepared a more complete estimate of the positive economic impacts of the program expenditures, taking account of leakages. *RC-2A*, p. 20-21 & Schedule DED-4.

PSE&G's analysis also did not consider the negative economic impacts of rate increases. *RC-2A*, p. 21. According to the Company's pro forma rate impact analysis, ratepayers would pay for the proposed electric investments over a 44-year period, and for the proposed gas investments over a 66-year period. *Id.* p. 22, *RCE-G-POL-58*, attachments WP-SS-ES-1E and WP-SS-ES-1G. Dr. Dismukes estimated the negative economic impacts associated with the Energy Strong rate increases over these periods. *RC-2A*, p. 22-23 & Schedule DED-4.

Overall, Dr. Dismukes' estimates show that the positive economic impacts outweigh the negative impacts during the initial years of the Energy Strong Program when the program expenditures are being made—but negative impacts persist thereafter as ratepayers continue to pay for the Energy Strong projects long after they have been completed. When leakages and negative impacts are considered, Dr. Dismukes estimated that the Energy Strong Program expenditures and rate increases would lead to a “net contraction of New Jersey economic output of \$338.4 million [net present value] and a reduction of New Jersey employment by almost 39,300 job years.” *RC-2A*, p. 22-23 & Schedule DED-4. As Dr. Dismukes explained, it is important to keep in mind that, while these impacts appear large, they occur over an extended period of time, *i.e.*, 44 years for the electric program and 66 years for the gas program. *RC-2A*, p. 22-23. Thus, while Energy Strong will have significant positive and negative impacts over an extended period of time, on balance the program expenditures are likely to be a drag on New Jersey's economy. *Id.*

Finally, PSE&G did not consider the uneven distribution of the costs and benefits of the program over different sectors of the New Jersey economy. The residential sectors

of the State's economy are likely to experience negative economic impacts. *RC-2A*, p. 24 & Schedule DED-5. Residential customers across all income groups are likely to experience net losses in income, with greater negative impacts on lower- and middle-income households than upper income households because a larger portion of their income goes to utility services. *Id.* Among non-residential sectors, there are clear "winners" and "losers." The largest relative "winners" are the construction, electric utility and natural gas utility sectors. *Id.*, p. 24. The "losers" encompass a broad set of industry sectors including pharmaceuticals, petrochemicals, and petroleum refining, as these sectors will experience rate impacts far exceeding any potential business opportunities related to program spending. *Id.*, p. 25.

PSE&G has criticized Dr. Dismukes' analysis, primarily because he did not include the storm mitigation benefits that the Company claims will result from the program. *P-4*, p.17. As discussed in detail above, even after a Board Order requiring PSE&G to produce detailed cost-benefit analyses and many months of discovery, PSE&G failed to produce sufficient documentation of the benefits ratepayers can expect to receive if the program goes forward. PSE&G did not provide "any meaningful evidence" that would have allowed Dr. Dismukes to include storm mitigation benefits in his analysis. *T241:L5-15* (Feb. 27, 2014).

The Board should reject PSE&G efforts to suggest that Dr. Dismukes should have overlooked the Company's failure to demonstrate the claimed benefits of its proposal because it is difficult to predict the weather. *T220:L8 to T221:L3* (Feb. 27, 2014), *T23:L1-6* (Feb. 28, 2014). As Dr. Dismukes explained, there is a more fundamental flaw in PSE&G's proposal—the Company's failure to define the weather impacts the

investments are intended to mitigate. *T24:19 to T26:L25* (Feb. 28, 2014). Based on Dr. Dismukes' experience studying the impacts of Hurricane Katrina and other severe storms occurring off the Gulf Coast, it is possible to plan for storm events that have varying impacts. Following these storms, there were concerns that insurance would be difficult to obtain for offshore gas drilling structures and equipment. *T25:L21 to T26:L18* (Feb. 28, 2014). However, the insurance markets were able to respond over time to the information gained from the storms. *T26:L18-22* (Feb. 28, 2014). As Dr. Dismukes explained, "it's doable" to analyze the risks of future storm damage based on recent storm experience. *T26:L22-24* (Feb. 28, 2014).

The record is devoid of any evidence that PSE&G conducted any meaningful analysis of the types of events intended to be addressed through its Energy Strong proposal, or the specific impacts that are sought to be mitigated by means of the proposed investments. The Company has failed to meet its burden of proving how, and by how much, the Energy Strong Program will benefit ratepayers. Dr. Dismukes' analysis shows that, in the absence of such demonstrated benefits, the Energy Strong Program will be net loss for New Jersey's economy.

#### **IV. PSE&G'S PROPOSED COST-RECOVERY MECHANISM IS CONTRARY TO LAW AND WILL PROVIDE AN UNREASONABLE WINDFALL TO ITS SHAREHOLDERS**

PSE&G has proposed a ten-year infrastructure investment program of approximately \$2.762 billion for electric distribution investment and approximately \$1.189 billion for gas distribution investment. In this case, the Company is requesting that the Board approve the first five years of the program with Company estimated costs of \$1.703 billion for the electric delivery programs and \$906 million for the gas delivery programs.

The Company proposes to recover the costs of the Energy Strong Program through a new surcharge mechanism, the Energy Strong Adjustment Mechanism (“ESAM”)<sup>20</sup>. The ESAM would recover return on net investment, depreciation amortization expense, operation and maintenance expenses, and other charges such as uncollectible costs and regulatory assessments. PSE&G plans to implement the gas and electric recovery mechanisms upon Board approval of the Energy Strong Program based on estimated annual revenue requirements and estimated annual billing determinants. The electric and gas annual revenue requirements for the initial rate recovery period are \$16.411 million for electric and \$12.970 million for gas. *P-3Rev p. 9.*

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<sup>20</sup> Through the ESAM, PSE&G plans to implement Energy Strong Adjustment Charges (“ESAC”) that would correspond with each base rate element. Each rate schedule would have a unique associated Energy Strong Adjustment Factor (“ESAF”) which would be an equal percentage of the corresponding base rate charge. Thus, the Company proposes to implement a rider for each rate element that would effectively increase each rate element by the same percentage.



**A. PSE&G's Proposed Recovery Mechanism is Single Issue Ratemaking and Lacks the Required Nexus to a Base Rate Case**

PSE&G has not demonstrated in this proceeding why an alternative recovery mechanism is needed in order to undertake those investments it deems necessary to provide safe and reliable utility service. From a cost recovery prospective, investments are either necessary to meet the Company's service obligations or they are not. While it would be ideal to ensure a 100% reliable utility system, 100 % reliability is neither possible nor is it a cost-effective goal. Any investment determined by this Board as necessary to ensure that the Company meets its service obligation to ratepayers should be recovered pursuant to the base rate case methodology that has traditionally been used by the Company to recover its cost of service.

The Company's proposed surcharge mechanism constitutes single-issue ratemaking, impermissible under New Jersey law and Board precedent. It is a fundamental precept of New Jersey utility law and regulation that an increase in rates may only be made pursuant to an investigation of rate base and rate of return. In re Intrastate Industrial Sand Rates, 66 N.J. 12, 18 (1973).

The Board has approved clauses or surcharges to recover costs outside of a base rate case as long as a sufficient nexus with a base rate proceeding exists. The "nexus" requirement was established in Industrial Sand when the Supreme Court affirmed the Board's practice of allowing certain components of rates to be established outside of a base rate case, if "the legal umbilical cord which ties them to the anticipated eventual determination of these fundamentals" is in place. The Court reasoned that

The justness and reasonableness of a particular rate of fare can only be determined after an examination of a company's property valuation which constitutes its rate case; its expenses including taxes and allowance for depreciation; and the rate of return developed by relating its income to the rate base.

...

A rate based upon an excessive valuation or upon property not used or useful in the rendition of the service subject to such regulation obviously would lay upon the individual user a burden greater than the reasonable worth of the accommodation supplied. The public is not to be laden with unreasonable or extortionate rates in order that dividends may be provided for the utility's stockholders.

Id. at 21-22 (citation omitted).

The principles established in Industrial Sand were reaffirmed in In Re Redi-Flow Corp., 76 N.J. 21, 41 (1978), which held that the Board could establish a fuel adjustment clause for a fuel oil distribution utility "only after a rate proceeding in accordance with N.J.S.A. 48:2-21 or N.J.S.A. 48:2-21.2."

At the evidentiary hearing in this case, the Company acknowledged that the ESAM was not tied to a base rate case and that with the proposed surcharge the Company would enjoy contemporaneous recovery of the Energy Strong expenditures. T83:L3-8 (February 26, 2014). The Company further acknowledged that shareholders were virtually guaranteed to recover all of their investment in the Energy Strong Programs, even if the Company was earning more than its currently authorized rate of return.

T84:L22-T85:L6 (February 26, 2014). As Mr. Swetz testified at the evidentiary hearing:

Q. So the ESAC would enable the company to charge a separate rate for the Energy Strong Investments without having to take into account the company's overall financial performance, revenue requirements, and the revenues actually being earned. Correct?

A. That is consistent with all our – the other clauses related to our Energy Strong energy efficiency solar. Their activities that have been judged by the Board to be suitable for collection outside of base rates.

Q. Right. And each of them established separate rates that didn't take into account anything else happening with the company. Correct?

A. Correct.

The Board has an obligation to ensure that ratepayers are not paying excessive rates. Redi-Flo, 76 N.J. at 39. (“N.J.S.A. 48:2-13 charges the Board with the task of overseeing the operations of all public utilities in accordance with the purposes of the Public Utilities Act, and foremost among these responsibilities is its duty to ensure that rates are not excessive.”) This is appropriately done in a base rate case where all the factors that go into the utility’s cost of service are considered in setting rates. The utility should not be allowed to avoid the ultimate scrutiny of its overall financial well-being by simply stating “This is a clause case.” The law in New Jersey does not provide ratepayers with one level of protection from unjust rates in a base rate case and a lesser level of protection in a “clause” case. The protections against unjustly high rates is equal in both proceedings and should be applied equally. As the New Jersey Supreme Court stated:

Tested in the scrutiny of final rate determination and only in that way . . .  
can such expenses be validated and become demonstrably honest  
components in the ascertainment of ‘just and reasonable rates’.  
In Re Board’s Investigation of Telephone Companies, 66 N.J. 476, 495 (1975)

Thus, because the Company’s proposal to collect the Energy Strong infrastructure investments through a surcharge does not comply with the requirement of a nexus to a rate case, it is unreasonable, unfair to ratepayers and should be rejected by the Board.

**B. PSE&G's Proposed Cost Recovery Mechanism is Unjust and Unreasonable as it Provides a Windfall to Shareholders and Unduly Burdens Ratepayers.**

**1. Ratepayers Impact**

Pursuant to customary ratemaking methodology, plant additions are only included in rate base, and therefore in utility rates, once the plant is completed and placed into service. Between base rate cases, plant that is booked to utility plant in service is not reflected in utility rates until the Company's next base rate case. Under the Company's Energy Strong proposal, however, ratepayers will bear higher costs sooner without the benefit of a base rate case. These charges will include not only plant that has been completed to date, but also plant that is projected to be completed over the next twelve months.

PSE&G claims that the utility plans to spend \$3.9 billion over the next ten years "without asking customers to pay more."<sup>21</sup> However, in the Company's Notice of Filing and Notice of Hearing<sup>22</sup> the Company admitted that in the first year the Energy Strong Program would increase rates for residential electric service by \$4.52 or 0.34% and would increase rates for gas service by \$4.80 or 0.66%. In subsequent years rates would continue to increase for the five year program up to \$60.48 or 4.48% for electric customers and \$58.40 or 5.21% for gas customers in year six. If the Company also implements the second five years of the ten year program, presumably customer rates would continue to go up.

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<sup>21</sup> P-9, "Energy Strong" Fact Sheet, packet pg. 115, attached to Teaneck Resolution 0, July 23, 2013.

<sup>22</sup> It does not appear that the Company entered the public notice into evidence in this proceeding. It is Rate Counsel's position that the public notice is properly a part of the record.

At the evidentiary hearing, Rate Counsel witness Andrea Crane explained that while the 4 or 5% increase noticed by the Company may look small, that is because the noticed increase was calculated based on overall rates, not on distribution rates. Ms. Crane testified that a more accurate picture of the increase could be obtained by looking at the Company's energy strong adjustment factor which is to be applied to each distribution rate component.

The way the company is proposing this mechanism would work is they are proposing that you take every rate component of their distribution rates and you increase that by some percentage each year. That's what they're proposing to do. That percentage starts low, its about one -1 percent – for electric, its about 1 %. And it increases every year to the maximum of 2019 when it's over 20 percent. . . For gas, again, it starts low. . . . and it increases to somewhere about 16 and one-half percent by 2019. *T146:L16 – T147:L13* (February 26, 2014)

Ms Crane explained that this large disparity in the projected increase arises because:

the company collects a surprisingly low percentage of their revenue through distribution rates. I mean you think of this as a distribution utility, you expect that a majority of their costs are going to be recovered through distribution rates. That's not true. I was even shocked when I saw what the number is. On the electric side, only about 19.2 percent of ... their revenues are distribution revenues. On the gas side, it's about 28 percent distribution.

So when you take a number like a 20 percent distribution increase and you now realize that that 20 percent increase only applies to about 20 percent of their revenues. That's how you come out with a number that looks very small. Oh it's only a 4 or 5 percent increase. It's a huge increase on distribution rates. It's just that the company has been so successful in stripping as much as they could over the years away from distribution rates into various clauses.

*T147:L14 – T148:L9* (February 26, 2014)

To understand the true rate impact associated with the Energy Strong Program, it is helpful to look at the dollar amounts rather than percentage increases. As confirmed by

the Company, the total revenue requirement associated with the \$1.7 billion investment on the electric side is \$4,786,251,000. On the gas side, the total revenue requirement associated with the \$906 million gas delivery program is \$3,317,449,000. *T-1*. These are the total amounts that will actually be collected from ratepayers over the life of these assets. Ms. Crane calculated the average annual increase, on a combined electric and gas basis, to be \$155 million. “On average, every year during that long period of time [until 2058 for electric and 2080 for gas], if you are going to talk averages, it’s \$155 million.” *T146:L1-15* (February 26, 2014). Thus if the Board were to approve the Energy Strong Program as proposed by the Company, ratepayers will pay a very heavy price.

The Energy Strong Program also results in rate uncertainty for ratepayers. Annual rate increases will make it difficult for customers to anticipate their charges for electric service or to assess the accuracy of their bills. Rate stability can be especially important to residential and small commercial customers. Permitting these costs to be recovered between base rate cases will also reduce the Company’s incentive to control and manage these costs. If the Company is required to file a base rate case to recover these costs, it is likely to work harder to keep costs down between base rate cases by investing in the most efficient projects and by managing construction of such projects effectively.

## **2. Shareholder Benefit**

Contrary to economic theory and good ratemaking practice, the proposed Energy Strong Program will increase shareholder return while significantly reducing shareholder risk. The program will reduce shareholder risk through accelerated cost recovery, *i.e.*, shareholders will no longer have to wait for a base rate case to recover their return on and

of this investment. Moreover, given the true up mechanism proposed by the Company, recovery of and on this investment is guaranteed. This guarantee results from the fact that any shortfall would be charged to ratepayers in a subsequent period. *T90:L18-21* (February 26, 2014).

Under the proposed ESAM, PSE&G shareholders will benefit from every investment dollar spent. The proposed ESAM will increase overall return to shareholders and accelerate recovery of that return. In the Company's last electric and gas base rate cases, the gross electric and gas plant in service was established at \$6.016 billion for electric and \$4.746 billion for gas. During the first five years of the Energy Strong Program, electric utility plant in service is projected to increase by over 28%. By year 10, the Energy Strong Program will increase electric plant in service by almost 45% relative to the amount established in the last base rate case. *RC-1, p. 19*. On the gas side, relative to the gas plant in service established in the last gas rate case, the proposed Energy Strong Program will increase plant in service by approximately 19% during the first five years of the program and by approximately 25% over the ten year period of the plan. *Id.*

A review of the Company's workpapers indicates that over the useful life of the proposed electric assets, the 5-year Energy Strong Program will generate approximately \$1.87 billion of return for investors on a net of tax basis. Approximately 75% of this amount, or \$1.4 billion relates to shareholder profits. And, while shareholders collect the \$1.4 billion in profit, ratepayers would actually have to pay the income taxes and other assessments associated with this shareholder profit. Thus, of the \$4.78 billion that the Company expects to charge electric ratepayers over the useful life of the Energy Strong

assets, a significant amount, approximately \$1.87 billion, is returned to investors on a net-of-tax basis. *T151:L15-23* (February 26, 2014)

Shareholders similarly benefit from the proposed 5-year Energy Strong gas utility projects. With regard to the gas utility, the Company will invest about \$900 million and will charge ratepayers about \$3.31 billion over the useful life of the assets. If approved by the Board, shareholders will end up with over a billion dollars of profit from the gas programs. *T152:L1-3* (February 26, 2014)

Moreover, under the Company's proposal, those benefits are guaranteed until the Company implements new base rates as part of a base rate case. The Company did not in its Petition propose to file a base rate case within a specified time period and, given the number of costs that are now recovered through surcharge mechanisms, there is little incentive for the Company to come in for a base rate case. *RC-1, p. 20* Instead of viewing the Energy Strong Program as an investment burden, investors are likely to view the Energy Strong Program as an opportunity to increase their returns and reduce risk.

### **3. Conclusion**

The ultimate question is whether, in the end, the Energy Strong Program is a reasonable investment for PSE&G ratepayers. PSE&G gas and electric ratepayers will be paying for this program for a long time, for some assets as long as 60 years. And, as seen above, the average cost per year over the life of the assets is \$155 million. This is a huge investment for a project that the Company has claimed is not necessary for the continued provision of safe, adequate and proper service. The Company has said "we can continue to invest prudently in the electric and gas system and their current designs, providing service to our customers with incremental improvements and repairs being made as



necessary and appropriate.” *P-1*, ¶ 9. If some of the investments become necessary due to some of the equipment nearing its estimated useful life, the Company can and should replace it and recover through a base rate case. *P-2R*, p. 9. The BPU should therefore reject the Energy Strong proposal and the associated cost recovery mechanism as proposed by PSE&G.

If the Board determines that some additional level of investment is necessary to ensure that PSE&G continues to provide reliable service to its customers, it is Rate Counsel’s position that that level of investment should be significantly smaller and recovered pursuant to the base rate case methodology that has traditionally been used by the Company to recover its cost of service. Use of the surcharge mechanism will result in a guaranteed return to shareholders, a transfer of risk from shareholders to ratepayers, and a further erosion of the integrity of the regulatory process. Adoption of ESAM puts the BPU in the position of pre-approving rate increases without knowing the exact magnitude of those increases. Moreover, as admitted by Company witness Swetz, these rate increases would occur even if the Company were earning more than its currently authorized rate of return. *T109:L8-16* (February 26, 2014).

If the Board approves some spending for Energy Strong Programs, it should also require that PSE&G continue to spend its current level of investment in its distribution system in addition to investment relating to Energy Strong and new business. The Company has stated that it will continue to undertake investments that are necessary for the provision of safe and reliable utility service regardless of whether the Energy Strong Program is approved. The Board should ensure that the Company meets this

commitment and does not shift capital resources that would otherwise be invested in the utility into the Energy Strong Program.

Further, as set forth in detail in Point VII of this brief, the Board should adopt the updated rate of return recommended by Rate Counsel witness Matthew Kahal as the appropriate carrying cost. As discussed below, Mr. Kahal's recommended return on equity in this instance would be 9.00% rather than the 10.3% granted in the Company's 2009 base rate case. Failing to update the cost of debt effectively awards PSE&G an 11% ROE, not its requested 10.3%. *RC-7, p. 7.*

In sum, it is Rate Counsel's position that the extraordinary rate treatment proposed by PSE&G to recover its Energy Strong investments is unnecessary and provides significant benefits to shareholders at the expense of the Company's customers. As a regulated utility, PSE&G has a fundamental obligation to operate the utility in a safe and reliable manner. The major storm events of the recent past have not changed that fundamental obligation. From a cost recovery perspective, investments are either necessary to meet the Company's service obligations or they are not. If the Board determines that some incremental level of investment is necessary to meet the challenges of extreme weather conditions, those investments should be reviewed and recovered through a base rate proceeding to ensure that ratepayer protections are upheld and that shareholders are not over-compensated. The ability to meet changing weather conditions does not require the Board to abandon traditional ratemaking principles and values.

**V. PSE&G HAS FAILED TO ESTABLISH THAT ITS ELECTRIC DISTRIBUTION PROGRAMS ARE REASONABLE AND PRUDENT**

PSE&G's proposed Energy Strong Program was described by Rate Counsel's witness Mr. Charles Salamone as one which "is poorly designed in terms of objectives, is poorly documented in terms of issues, and is highly volatile in terms of cost estimates." *T128:L17-20* (March 6, 2014). In short, PSE&G's planning process did not adequately consider the objectives, effectiveness, and cost of its proposed storm-hardening measures. The impact of these omissions is magnified by the staggering cost of the Company's proposed Energy Strong electric programs, amounting to \$1.7 billion over the first 60 months and \$2.76 billion over ten years. *P-1*, p. 4. The proposed total spending for Energy Strong is unprecedented, even when compared to PSE&G's base rate-funded distribution capital spending. Mr. Salamone concluded that, as proposed, PSE&G's annual expenditures for its electric Energy Strong projects will exceed the annual expenditure for the Company's entire electric distribution capital budget (less new business projects) by 2015. *RC-5A*, p. 7, Schedule CPS 3.

Furthermore, Mr. Salamone found that the proposed Energy Strong subprograms represent a significant increase over recent expenditures for similar projects over the past five years. While Energy Strong projects over the next five years are projected to total \$1.7 billion, PSE&G only spent \$341 million for similar projects over the past five years. *RC-5A*, p. 9, Schedule CPS 4.

PSE&G's proposed storm-hardening program for its electric distribution systems, referred to in the Energy Strong Petition as its Electric Delivery Infrastructure Hardening

program, is comprised of six major subprograms, as set forth below together with the projected cost of each subprogram over the first five years of the Energy Strong Program:

1. Station Flood and Storm Surge Mitigation (\$803 million);
2. Outside Plant Higher Design and Construction Standards (\$135 million);
3. Strengthening Pole Infrastructure (\$105 million);
4. Rebuilding Backyard Pole Lines (\$100 million);
5. Targeted Undergrounding to Mitigate Storm Impacts (\$76 million); and
6. Relocation of Operations Centers and Emergency Response Center (\$15 million).<sup>23</sup>

In addition, PSE&G proposes two major Electric Delivery Resilience subprograms: (1) Advanced Technologies (\$251 million) and (2) Contingency Reconfiguration Strategies (\$200 million).<sup>24</sup> *P-1*, pp.18-35 and Attachment 1.

The flaws in the planning process are compounded by the failure of PSE&G to identify any metrics to gauge the effectiveness of its proposed programs under storm conditions. *T134:L14-TT13:L18* (March 6, 2014). Furthermore, PSE&G does not propose a prudency review of its Energy Strong Program in a future base rate case. *P-1*, p. 34. Instead, PSE&G seeks approval of its proposed Energy Strong projects as prudent in the instant proceeding, with only a “focused review of the prudence of actual expenditures” in its proposed annual true-up filings. *P-2R*, pp. 1 and 4. PSE&G contends that the instant proceeding has allowed for a sufficient review of the prudence of the proposed projects and asks that they be approved prior to any implementation. *P-2R*, p. 4. However, as set forth herein, PSE&G has not provided sufficient evidence to support a finding that the proposed projects are a prudent use of ratepayer funds. *See RC-5 (Confidential), RC-5A, RC-6 (Confidential), RC-6A, and T123:L15-T141:L10* (March 6,

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<sup>23</sup> *P-1*, pp. 5-18 and Attachment 1; *T12:L9-11* (February 26, 2014).

<sup>24</sup> PSE&G eliminated from its filings its proposed supplemental investment program for back-up generators and quick connects. *T12:L12-25* (February 26, 2014)

2014). Therefore, Rate Counsel respectfully submits that PSE&G's electric sub-programs, as proposed, should be rejected.

**A. Electric Program Review, and Selection Process**

PSE&G has a long-standing, multi-level review process for capital projects proposed by its utility operating personnel. Known as the Investment Evaluation System ("IES"), PSE&G's internal capital spending review process involves scrutiny of both the technical and financial aspects of proposed projects, prior to implementation. *See T36:L14-T43:5* (March 6, 2014); *RC-26* (Confidential). Furthermore, progress reviews as well as other controls extend into the actual construction phase for approved projects. *T36:L14-T43:5* (March 6, 2014); *RC-26* (Confidential).

As described above, the Energy Strong Program includes numerous capital projects which are both costly and significant in scope. However, PSE&G did not follow its rigorous IES process for the review and selection of its proposed Energy Strong electric projects. *P-2R*, p. 9. PSE&G claims that its use of a less rigorous review process was necessary because Energy Strong's "benefits fall outside of our current scorecard metrics." *P-2R*, p. 9; *RCR-E-86*. So, rather than vetting the proposed Energy Strong projects through the IES process, the Energy Strong projects included in the Company's filing were selected by a group of personnel from PSE&G's Asset Management, Engineering and Field Operations staff. *P-2R*, p. 6.

Nonetheless, some attempts were made to rank the projects. The Company ranked the substations based on the number of customers affected. *RC-24* (S-PSEG-ES-33). In response to a Board Staff inquiry, the Company ranked its proposed Energy Strong mitigation measures for the targeted substations based on certain program budget

levels (*i.e.*, \$1 billion, \$2 billion, \$3 billion, and \$3.94 billion). *See RC-25* (S-PSEG-ES-52). Although some documentation was provided with respect to prioritizing Energy Strong electric projects, scant information was provided with respect to how this group “scored” the Energy Strong projects for ranking. *RC-5A*, p.11. Even assuming *arguendo* that the internal group vetting the Energy Strong projects had considerable experience with the Company’s electric distribution system, nothing was presented to demonstrate that the Energy Strong project review process followed a rigorous format akin to the IES process.

Furthermore, Mr. Salamone found that PSE&G did not identify any metrics to assess the effectiveness of its proposed measures, whether to guide their design or evaluate post-construction performance.<sup>25</sup> *T134:L14-T136:L12* (March 6, 2014). Instead, at least with respect to its proposed substation projects PSE&G was guided by FEMA flood elevations and New Jersey DEP regulations addressing flood elevation requirements, even though those guidelines do not mandate elevating the substations. *P-2*, p. 8. Not surprisingly, this less rigorous review process yielded less than optimum projects for inclusion the Energy Strong Program, as set forth in the testimony of Mr. Salamone.

Unlike steps taken immediately after Superstorm Sandy, there is no urgent need to abandon more rigorous analysis for Energy Strong projects. In the immediate aftermath of Superstorm Sandy, the Board understandably acted quickly to implement certain measures to protect our State’s electric distribution system. Mr. Cardenas noted that in response to the Board’s Irene January 2013 Order, the Company implemented 63 items

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<sup>25</sup> In response to discovery requests (AARP-2, PSEG-ES-51), PSE&G proposed several possible metrics, but did not commit to any.

and, as of November 2013, 14 items related to that Order were still in progress. *P-2R*, p. 5. However, the scope and cost of PSE&G's proposed Energy Strong projects go way beyond those initiated early on in response to the Irene January 2013 Order and the proposed multi-year timetable for implementation of the Energy Strong Program provides sufficient time for a more careful review.

The Company's flawed vetting and planning process for its Energy Strong electric proposal manifested itself in other ways too. The preliminary nature of PSE&G mitigation proposal is illustrated by the contingency factor built into the Company's cost estimates for its proposed Energy Strong electric projects. For its substation projects, the contingency is 50 percent. *T26:L14-T27:L24* (March 6, 2014). In response to a transcript request, PSE&G indicated that most of its electric mitigation cost estimates included a 25 percent contingency factor. *TR- 2*. A level of contingency such as this is far in excess of the ten percent contingency factor that Mr. Salamone found the Company requires for its own capital projects without further approval. *RC-6A*, p. 17-19.

This results in higher costs for ratepayers. By asking for approval of projects and costs prior to a full review, the Company's projections include higher contingency factors which would then be incorporated into the contemporaneous rate mechanism sought by the Company in this case. It is unfair to ask ratepayers to assume this risk. The Company should be required to apply the same scrutiny that it would apply to projects it funds with its own capital and not ask ratepayers to fund contingencies it would not ask its Board of Directors to approve.

## **B. Electric Storm-hardening Program**

### **1. Station Flood and Storm Surge Mitigation**

By far, the most costly component of PSE&G's Energy Strong electric program is its substation proposal, involving 29 electric substations totaling to \$803 million over the first five years of the program.<sup>26</sup> PSE&G selected for inclusion in this sub-program certain electric substations which the Company viewed as at risk from flooding and storm surge damage. These substations were selected from a group of 21 substations impacted by Superstorm Sandy and 13 substations impacted by Hurricane Irene and "prior water intrusion events." *P-1*, pp. 5-6. In turn, the Company considered three basic substation flood and storm surge mitigation measures: (1) installation of flood walls, (2) Raise and Replace,<sup>27</sup> and (3) Relocation. *P-1*, pp. 5-8. Installation of flood walls was identified early on by PSE&G as the least costly mitigation option with a relatively short construction timeframe, requiring approximately 12-18 months to complete. *P-1*, p. 6. Raise and Replace is time consuming, taking approximately 24 months to complete, while Relocation was described by PSE&G as very costly and taking approximately 30-36 months to complete. *See P-1*, pp. 6-8. Mr. Cardenas testified that the three mitigation options were "equally effective." *P-2*, p. 8.

However, the Company overwhelmingly chose a more costly mitigation option, Raise and Replace, for its Energy Strong substation program.<sup>28</sup> Of the 29 substations

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<sup>26</sup> *See P-1*, p. 9; *RC-6A*, p. 14, S-PSEG-ES-79; *T11:L2-T12:L11* (February 26, 2014).

<sup>27</sup> Raise and Replace consists of the rebuilding of the existing infrastructure (e.g., control houses, transformers, breakers and feeder rows) at a higher elevation and replacing the existing facility. *P-1*, pp. 6-7; *P-2*, p. 9.

<sup>28</sup> Although at hearing, Mr. Cardenas testified that the selection of substation mitigation measure will be made at the "time of initiation of the project", the Company's rate recovery cost estimates are based on its selection of mitigation measures for each substation as set forth in its answer to S-PSEG-ES-79 as modified by Mr. Cardenas on February 26, 2014. *T18:L12-T19:L7* (February 26, 2014).



selected for mitigation measures, the installation of flood walls was the option selected for only four substations. *S-PSEG-ES-79*. PSE&G notes that its proposed substation program brings its stations up to the FEMA post-Sandy flood elevations and the New Jersey DEP flood hazard area rules, codified at N.J.A.C. 7:13, even though they are not mandated to meet those guidelines for these stations. *P-1*, p. 5.

**a. Substation Selection Process**

PSE&G selected 29 substations for mitigation. *P-1*, p.9, *T20:L2 – T22:L25* (March 6, 2104). In its Petition, the Company grouped substations targeted for mitigation measures as “high”, “medium”, and “low” priority, based on “the magnitude of previous flooding or tidal surge events at that station, and the number of customers likely to be affected by a future event.” *P-1*, pp. 8-9. In response to a Board Staff discovery request, the Company later ranked the targeted substations based on the number of affected customers. *RC-24*. However, although the Company based its selection of substations and mitigation measures on past experience and FEMA flood maps, it did not perform an independent analysis of the probability of severe weather events in the future. *RC-5*, p. 12.

**b. Selection of Mitigation Measures**

In addition to its recommended course of action, PSE&G produced a study of 12 substations by Black and Veatch engineering, and another study performed in response to the Board’s Energy Strong June 2013 Additional Information Order by outside engineering firms.<sup>29</sup> Mr. Salamone examined the supporting documentation provided by the Company and concluded that the considerable additional expense of the costly

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<sup>29</sup> *See* S-PSEG-ES-14 and the Engineering Reports. The Engineering Reports were transmitted to the parties under a cover letter dated November 15, 2013.

mitigation options is not justified. *RC-6*, pp. 3-4. As set forth in Mr. Salamone's testimony, the selection process for determining the appropriate mitigation measure for each substation was flawed at many levels.

First, Mr. Salamone found that the Company selected mitigation measures for each substation without completing a thorough analysis of alternatives. In its response to S-PSEG-ES-66, the Company set forth its standardized method of project identification, development, and execution, divided into five phases: (1) Project Initiation, (2) Preliminary Engineering/Design, (3) Detail Engineering/Design, (4) Construction, and (5) Completion. In its response to S-PSEG-ES-86, the Company indicated that it was still at the "Project Initiation" stage for its substation program. This implies that the Company had not yet completed the Preliminary Engineering/Design phase. *RC-5*, p. 26. Mr. Salamone thus concluded that PSE&G had not yet completed the fundamental stage in the process that precedes Project Initiation, which is "the clear identification of need and development of alternative solutions." *RC-5*, p. 26.

The net result of PSE&G's internal selection process was adoption of the costly Raise and Replace for most of the substations, and rejection of the lower cost floodwall option recommended by Black & Veatch and some instances, the Engineering Reports. *RC-6A*, pp. 12-17. Mr. Salamone found that PSE&G based the need for mitigation measures "solely on the revised 100 year FEMA flood level maps." *RC-5*, p. 25. Furthermore, Mr. Salamone found that although the cost difference between the floodwall and other alternatives was considerable, the Company rejected the floodwall alternative based on "cursory" explanation, namely its unsupported estimate of the maintenance expense associated with floodwalls. *RC-5*, p. 26. Noting that utilities

typically must conduct maintenance and monitor substations on an ongoing basis as well, Mr. Salamone concluded that the Company did not make a convincing case for rejecting the floodwall alternative based on the Company's maintenance expense claims. *RC-5*, pp. 25-26.

In a detailed study commissioned after Hurricane Irene, Black & Veatch considered alternatives and concluded that installing flood walls around twelve substations would cost a total of only \$10.1 million, which is much less costly than PSE&G's cost estimate for the same twelve substations (which included eliminating four substations) of \$326 million. *RC-5*, pp. 22-24, Schedule CPS 7. Based on his review of the Black & Veatch study, Mr. Salamone concluded that PSE&G did not identify the least cost alternative in devising its mitigation measures. *RC-5A*, pp. 24-25.

As noted, PSE&G also presented reports prepared by outside engineering firms. However, Mr. Salamone found that although the analyses included in the Engineering Reports provide cost assessments of engineered construction alternatives, these costs were then "completely ignored in the recommendations put forward." *RC-6A*, p. 15. Mr. Salamone concluded that "[i]n almost every case the recommendation is based solely on PSE&G's judgment concerning the maintenance costs and perceived risks associated with the alternatives." *RC-6A*, p. 15. Furthermore, much like the Company's in-house selection of alternative mitigation measures, although maintenance costs were cited by the engineering firms for rejecting alternatives, Mr. Salamone found that the engineering

firms did not include any “factual evaluations concerning either the maintenance costs or risks associated with any of the alternatives.”<sup>30</sup> *RC-6A*, p. 15.

Rate Counsel respectfully submits that the selection of mitigation measures involving significant costs and risk should be based on a facts and careful analysis. Here, PSE&G selected mitigation alternatives without conducting such an analysis. It then rejected alternatives based on unsubstantiated costs or unidentified concerns. Rather than simply approving PSE&G’s selection of costly alternatives the Board should require PSE&G to conduct the necessary detailed analyses to support the prudence of each element of its program, and the measures selected to address the risk of storm damage. Only those projects shown to be cost-effective should be approved.

**c. Outside Plant Higher Design and Construction Standards**

As one of the “storm hardening” measures in its Energy Strong Program, PSE&G proposed converting some of its circuits to a higher voltage to better resist storm damage. Selected 4 kilovolt (“kV”) distribution circuits would be upgraded to 13 kV design standards while still operating at 4 kV, and selected 26 kV distribution circuits would be upgraded to 69 kV design standards while still operating at 26 kV. *RC-5A*, p. 33. The cost of this proposed sub-program is \$125 million for the first five years of the program. *P-2*, p. 15; *RC-5A*, p. 6, Schedule CPS 2. For this amount, PSE&G proposes to convert 5% of its outside plant distribution equipment, but it has not yet selected which equipment to convert. *P-2*, p. 14.

PSE&G asserts that its proposal will bring “demonstrable,” but unquantified benefits.<sup>31</sup> *P-2R*, p. 47; *RCA-5A*, p. 15, Schedule CPS-5. However, the Company itself

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<sup>30</sup> Notably, PSE&G did not submit its engineering firms’ analyses until well after the filing date of their Energy Strong Petition. The Engineering Reports for the substations were transmitted to the parties under a cover letter dated November 15, 2013.

found that these proposed voltage conversions were not cost-effective, under its own “break-even” analysis, except under the most extreme Superstorm Sandy-type event. *RC-5A*, p. 33; *RCR-E-2*; *RCR-E-131*. While, as noted earlier, Rate Counsel asserts that Brattle’s “break-even” methodology is of little or no value, this sub-program fails even that less rigorous test.

In any event, there is inadequate evidence to support the “storm hardening” benefits of the proposed voltage conversions. As described by the Company, converting from a 26 kV design standard to a 69 kV design standard would involve increasing the separation of phases (wires) and the height of poles, and installing higher voltage insulators and larger conductors. However, according to Rate Counsel expert witness Mr. Salamone, due to the relatively small increase in phase (wire) separation and the higher poles, these improvements would still leave all of these circuits susceptible to wind related damage during a hurricane or “superstorm” condition. *RC-5A*, p. 34. During strong wind storm conditions, tree contact is the primary concern. Except for avoiding some contact with shorter trees due to the greater pole height, the “storm hardening” benefits of converting circuits to a higher voltage appear to be “overly optimistic.” *RC-5A*, pp. 33-34.

The purported benefits are even more suspect when converting from a 4 kV design standard to a 13 kV design standard. This conversion, in fact, does not involve any change at all in the pole height or the phase (wire) separation. The only difference would be higher voltage insulators and larger conductors. *RC-5A*, p. 34. While these

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<sup>31</sup> PSE&G assumed that the number of customers impacted by the upgrade would be 30,449, while the Brattle Group assumed that the number of customers impacted by the upgrade would be 34,495. *RC-6A*, pp. 7-8; *RCR-E-169*. Rate Counsel does not know the reason for this discrepancy.

differences may account for some benefit, it is highly unlikely that any such benefit would approach the values suggested by PSE&G. *RC-5A*, pp. 33-34.

PSE&G also proposes as part of this sub-program to replace open wire overhead construction with spacer cable. PSE&G claims this will improve the resistance to tree and limb damage of its overhead wires in heavily forested areas. *P-2*, p. 15. However, PSE&G proposes to convert only ten (10) miles of its open overhead wire, *P-2*, p. 15, and has not yet selected which equipment to convert, *Id.*, p. 16; *T94:10-19* (March 6, 2014). At a cost of \$10 million for the first five years of the program, this proposal would be cost-effective under PSE&G's own analysis only under Superstorm Sandy- like conditions. *P-2*, p. 16; *RC-5A*, p. 6, Schedule CPS 2; p.15, Schedule CPS 5, p. 33; *T81:L18-19* (March 6, 2014).

Another problem with the spacer cable proposal is that the Company has failed to consider less expensive alternatives. PSE&G failed to consider enhanced vegetation management as an alternative for preventing storm damage to its overhead lines, especially in heavily forested areas. Enhanced vegetation management is not only a more cost-effective method than any of the technologies proposed by PSE&G, but is the method the Company itself chose to prepare for Superstorm Sandy. *RC-5A*, pp. 37-38; *RCR-E-124*, pp. 64-65 (“requests for additional tree trimming”). PSE&G's own Annual System Performance Indices show that, from 2000 through 2012, tree outages accounted for 16% to 28% of its customer hour outages. *RC-5A*, p. 38; *RCR-E-124*, p. 20 of 214. PSE&G, however, has only proposed as one of the “Supplemental Investments” a plan to develop a minor vegetation management pilot program with municipalities as part of its Energy Strong Program. *T80:2-8* (March 6, 2014); *P-1*, pp. 25 & 34-35.

## **2. Strengthening Pole Infrastructure**

As part of its Energy Strong electric program, PSE&G also proposes to replace utility poles, add utility poles, and re-guy utility poles, for a total project cost of \$105 million. *P-2*, p. 18. Specifically, PSE&G proposes to deploy stronger “guying” (cable supports) for utility poles, install larger diameter utility poles, and reduce spans between utility poles. *P-2*, p. 16. In addition, PSE&G also proposes to evaluate non-wood materials to replace wood utility poles. *P-2*, p. 17.

Mr. Salamone examined the support provided by PSE&G for its proposed backyard poles and found that the Company only provided “ cursory support” for the program. *RC-5A*, p. 30. In fact, even the Company’s own cost-benefit analysis showed that this subprogram would not be cost-effective under any of the three storm scenarios examined. *RC-5A*, p. 16 and Schedule CPS 5, p.32. Mr. Salamone recommended that PSE&G be required to conduct a study which clearly documents the outage reduction benefits before including this in any storm resiliency program. *RC-5A*, p. 31. Mr. Salamone also opined that vegetation management is a reasonable and more cost-effective alternative to a number of proposed Energy Strong elements that seek to reduce tree limb to wire contacts during hurricanes and normal, less severe events. *RC-5A*, pp. 37-38.

### **a. Rebuilding Backyard Pole Lines**

With the intent of decreasing the number and frequency of outages due to storm events, PSE&G also proposes to upgrade backyard utility poles to current overhead standards, use vegetation management, or convert backyard systems to underground. *P-2*, pp. 18-19. The actual mitigation method selected will be determined by PSE&G on a

“case by case” basis. *P-2*, p. 19. PSE&G estimates that this sub-program will cost \$100 million over five years. *P-2*, p. 19. Overall, this subprogram only covers about 20 miles of line and would reduce outages by slightly more than 7 hours for less than 2 percent of PSE&G’s total customer base. *RC-6A*, p. 32.

Mr. Salamone examined the support provided by PSE&G for its proposed utility pole strengthening program and found that even the Company’s own cost-benefit analysis showed that this subprogram would not be cost-effective under any of the three storm scenarios examined. *RC-6A*, p. 16 and Schedule CPS 5. Mr. Salamone recommended that this subprogram be rejected as proposed. It should only be implemented if found to be cost-effective and through the Company’s normal course of business. *RC-6A*, p. 32.

### **3. Targeted Undergrounding to Mitigate Storm Impacts**

Targeted undergrounding would involve several measures: replacing PSE&G’s current pad-mounted automatic transfer switches and transformers with submersible switches and transformers or subway-type transformers, and moving 20 miles of its many hundreds of miles of overhead lines underground. *RC-5A*, p. 35-36; *P-2*, pp. 19-20. The total cost of this sub-program is \$76 million over five years. *RC-5A*, p. 6, Schedule CPS 2. PSE&G has indicated that if the size of the overall programs were reduced to \$1 billion or \$2 billion, it would not proceed with these programs. *S-PSEG-ES-52*, p. 2 of 20.

Unfortunately, these proposals involve technologies whose effectiveness is currently unknown, that may not be commercially available and may be incompatible with other elements of the Company’s infrastructure. *RC-5A*, p. 35-36. Moving



overhead lines underground can also make matters worse, since restoring service to areas served by underground wires that have flooded may be more expensive and time-consuming, which PSE&G admits. *RC-5A*, p. 37; *RCR-E-99, P-2R*, p. 48. Underground systems also are more expensive to upgrade and replace. *RC-5A*, p. 37. The fact that the Company has not yet selected which segment(s) of its lines to move underground makes it difficult, on this record, to analyze the benefits and costs of this sub-program. See *RC-5A*, pp. 36-37; *P-2R*, pp. 47-48.

The effectiveness of these proposed technologies is also currently unknown. PSE&G stated in its Petition that the submersible switch and transformer technology it proposes to use were at the time not yet commercially available. *RC-5A*, p. 35; *P-1*, p. 21. Not surprisingly, Mr. Salamone opined that relying on technology that is not yet commercially available appears to be “overly optimistic.” *RC-5A*, p. 35. In his rebuttal testimony Mr. Cardenas stated that submersible pad-mounted automatic transfer switches had become available, *P-2R*, p. 47, and at the hearing testified that they would be “in production in two weeks.” *T13:22-14:6* (Feb. 26, 2014). Mr. Cardenas also testified at the hearing that pad mounted transformers “that don’t require that [type] of submersibility” would be available in about four weeks. *T14:7-18* (Feb. 26, 2014).

Thus, PSE&G proposes to rely on technology that was unavailable at the time of the Petition and, at best, will be newly introduced into the market during the course of this proceeding. Mr. Cardenas testified on rebuttal that, “PSE&G would not implement this part of the program if the product was not available or the product was not effective,” *P-2R*, p. 47. While Mr. Cardenas testified that these switches and transformers are now available, he acknowledged that they are very new. Thus, their effectiveness in actual

storms remains untested. In sum, PSE&G has failed to demonstrate the effectiveness or the cost-effectiveness of these new products with any evidence in the record of this proceeding.

#### **4. Relocate Operations Centers and Emergency Response Centers**

Mr. Cardenas listed “Relocate Operations Centers and Emergency Response Centers”<sup>32</sup> among Energy Strong’s “six proposed sub-programs related to hardening.” *P-2*, p. 7. This sub-program would relocate critical electric and gas dispatch operating centers, over a two-year period, at a cost of \$15 million. *RC-5A*, p. 6, Schedule CPS 2. PSE&G would relocate its three operational control rooms, now located below sea level, to a higher floor within the existing building, making them less susceptible to flooding. *P-1*, pp. 17-18, *S-PSEG-ES-52*, p. 2 of 2; see *P-2R*, p. 7.

PSE&G found that these proposed relocations were cost-effective, under its own “break-even” analysis, only under the most extreme, Superstorm Sandy-type event. *RC-5A*, p. 15, Schedule CPS 5; *S-PSEG-ES-2*; *S-PSEG-ES-25*; *RCR-E-131*. PSE&G did not accord them a high priority either, ranking them 12<sup>th</sup> of 17 sub-programs proposed in Energy Strong Program. *S-PSEG-ES-52*, p. 2 of 2. Furthermore, PSE&G stated that it would not perform these relocations at all if its budget for the Energy Strong Program were reduced to \$1 billion or \$2 billion. *Id.*

### **C. Electric Delivery Infrastructure Resiliency Programs**

#### **1. Advanced Technologies**

PSE&G’s proposed “Advanced Technologies” sub- program would cost \$451 million over ten years, of which \$251 million would be spent in the first five years. *RC-*

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<sup>32</sup> PSE&G also refers to these centers as “Electric and Gas Dispatch operating centers.” *RC-5A*, p. 6, Schedule CPS 2.

5A, p. 6, Schedule CPS 2; *P-1*, Attachment 1. PSE&G proposes to install microprocessor relays; remote terminal units on its 4 kV, 13 kV and 26 kV systems; and its own fiber optic communication network in an effort to improve system monitoring and the reliability of communications during extreme conditions such as Superstorm Sandy. *RC-5A*, pp. 38-39. PSE&G proposed an Advanced Technologies Sub-Program with seven elements. *P-1*, pp. 18-22 and Attachment 1. Two elements were proposed to address "System Visibility": 1) Microprocessor Relays and SCADA Field Equipment<sup>33</sup>, and 2) Distribution Management System (DMS): Two elements were proposed to address "Improvements to Communication Network to Better Address Storm Impacts": 1) High Speed Fiber Optic Network, and 2) Pilot Satellite Communications System. Three elements were proposed to address Storm Damage Assessment: 1) Advanced Distribution Management System, 2) Enhanced Storm Management Systems, and 3) Expand Communication Channels. Upon review of the Advanced Technologies sub-program, Rate Counsel witness Mr. Salamone observed that the purported benefits claimed by the Company are suspect at best, and even with PSE&G's assumed benefits it fails the cost benefit analysis for all but catastrophic events such as Superstorm Sandy. *RC-5A*, p. 40.

PSE&G says it needs this sub-program to improve its distribution system information and communication system reliability under catastrophic conditions during extreme storm events. Its own "break even" analysis shows a benefit only under a Superstorm Sandy type event. *RC-5A*, p. 40 and p. 15, Schedule CPS 5. PSE&G suggests that this technology could determine whether an outage was transient, thus saving the cost of inspecting the circuit with field staff. *P-1*, pp. 18-19; *RC-5A*, pp. 39-40; *p-2*, pp. 24-25; *P-2R*, pp. 49-50. PSE&G has not provided an analysis of how many

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<sup>33</sup> "Supervisory control and data acquisition" or "SCADA."

of its outages are caused by a transient event, so the applicability of the proposed technologies cannot be evaluated. *RC-5A*, p. 40. If implemented, this work would not prevent any customer outages, *Id.*, which PSE&G admits, *P-2R*, p. 48. Despite its great cost, this proposal may reduce the duration of some customer outages, and perhaps improve the flow of information from the system to the Company. *RC-5A*, p. 39. PSE&G has not shown, however, that the improved flow of data is worth the disproportionately large investment.

This proposed “Advanced Technologies” sub-program also is not cost-effective because many of PSE&G’s circuits already are equipped with devices (automatic reclosing devices) that would render it redundant. Automatic reclosing devices are designed to clear a transient power interruption that has occurred by automatically attempting to re-energize the interrupted circuit, which PSE&G admits. *RC-5A*, p. 40, *P-2R*, p. 49. These reclosing devices are designed to operate before any station relay device would operate, so that any transient power interruption would not be seen by the station relays. *Id.* Accordingly, there would be no data on the transient power interruption to transmit. Mr. Salamone opined that PSE&G’s proposed microprocessor relay information network may be useful only “in a limited number of cases for a limited number of events.” *RC-5A*, p. 40. While in rebuttal PSE&G claimed that its Advanced Technologies proposal would reduce its field personnel time and improve its work processes, *P-2R*, pp. 49-50, the Company failed to quantify the benefits or avoided costs of its proposal. Having shown only limited and unquantified utility, at an extreme

expense,<sup>34</sup> PSE&G has failed to establish the cost-effectiveness of its proposed “Advanced Technologies” sub-program.

## **2. Contingency Reconfiguration Strategies Program**

In its Reconfiguration Strategies, PSE&G proposes to spend \$200 million over five years to “establish contingency strategies through smart fuses and redundant loop schemes.” *P-1; RC-5A*, p. 6, Schedule CPS 2. Essentially, this sub-program proposes to install additional reclosing devices on 167 existing 13 kV loop circuits, to break the circuits into smaller sections to reduce the number of customers who lose service due to a permanent fault in the circuit. *RC-5A*, p. 41; *AARP-10*. Although PSE&G proposes to reconfigure a specific number of circuits, it has not conducted any analysis to determine which circuits or how many circuits would benefit from such a change in configuration. *RC-5A*, p. 41; *RCR-E-76*. Rather than provide substantial evidence to support the benefits provided or costs avoided by this program, PSE&G in rebuttal offers the unwritten, collective opinion of unnamed expert employees. See *P-2R*, p. 51.

PSE&G’s benefits to costs analysis of this program is both inadequate and based on several unsupported assumptions. *RC-5A*, pp. 41-42. PSE&G assumed that implementing this sub-program, on its unidentified circuits, would reduce all customer outages by 10% and would improve customer restoration time by 10%. *RC-5A*, p. 41; *AARP-10*. PSE&G further assumed that installing an additional reclosing device on a circuit would reduce the number of customer outages due to a sustained outage on that circuit by 33%. *RC-5A*, pp. 41-42. PSE&G’s own “break even” analysis shows a benefit exceeding costs only under a Superstorm Sandy type event. *RC-5A*, p. 41, and p. 15, Schedule CPS 5.

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<sup>34</sup> \$250 million over 5 years, and \$451 million over 10 years.

The proposed Contingency Reconfiguration Strategies sub-program may prevent some customer outages, depending on their location, but will not reduce their duration. *RC-5A*, p. 42; *AARP-10*. PSE&G cited in its Petition a theoretical example where its proposed technology may reduce the number of customer outages on a circuit by about 8%; however, that example did not discuss whether it would reduce the duration of customer outages. *RC-5A*, p. 42; *AARP-10*. This proposed program also will not prevent the occurrence of any outages. *RC-5A*, p. 42.

### **3. Supplemental Investment**

This sub-program proposed spending \$2 million to purchase, stockpile and distribute emergency generators and quick connector devices for use by some of its customers' facilities. *T:12:12-25* (Feb. 26, 2014); see *P-2R*, pp. 51-52; *S-PSEG-ES-35* to *S-PSEG-ES-39*. PSE&G stated during the course of this proceeding that it intends to remove this proposed sub-program from the Energy Strong Program. *T:12:12-25* (Feb. 26, 2014).

### **4. Conclusion**

As set forth above, Rate Counsel respectfully submits that the Company has not provided sufficient detail and analysis to support its proposed \$1.7 billion Energy Strong electric program and, based on the information provided, it would not be reasonable and prudent to implement the program, as proposed. As an alternative, the Company should be required to conduct the necessary analysis, including detailed cost-effectiveness analyses incorporating probabilistic weather analyses and IES-like internal reviews, and only present for approval those projects with demonstrated verifiable benefits at the least cost, with a phased-in approach for implementation. Rate Counsel respectfully submits

that only then should the Board consider such projects and review each element on a measure-by-measure basis.

**VI. PSE&G HAS FAILED TO ESTABLISH THAT ITS GAS DISTRIBUTION PROGRAMS ARE REASONABLE AND PRUDENT**

**A. Overview of the Natural Gas Delivery Program**

As part of the initial 5-year, \$2.6 billion Energy Strong Program, PSE&G has proposed to spend about “...\$906 million on gas delivery, and associated ...operation and maintenance expenses.” *P-1*, p. 4. Specifically, PSE&G divided its storm hardening program for natural gas delivery service (“NGD”) into two parts: (1) metering and regulating (“M & R”) station flood and storm mitigation, and (2) replacement of cast iron mains and services. The Company alleges that due to the pattern of storms in recent years and resulting water infiltration, it is necessary to elevate nine M & R stations and a liquefied natural gas plant (“LNG”) above the FEMA flood elevation levels. *P-1*, p. 26. PSE&G also plans to replace about 750 miles of cast iron mains, upgrade the operating pressure and install excess flow valves (EFVs”), which operate as a safety device that automatically shuts off gas in the event of service disruption. *Id.* at p. 30. Although the Company requested approval for the first 5 years of the NGD in its petition, the completed program would be at an estimated cost to ratepayers of approximately \$1.2 billion over six to eight years. *Id.* at p. 4.

In his direct testimony, PSE&G witness, Mr. Jorge Cardenas, outlines the Company’s NGD Program. *P-2*, p. 35-42. In summary, PSE&G plans in Years 1 through 5 of its M & R Station sub-program to elevate six M & R stations, the Burlington LNG plant and a liquefied petroleum gas (“LPG”) facility in Harrison above the designated FEMA flood level. *Id.* at p. 37-38. In Years 6 through 8, the Company plans to extend the sub-program to four additional M & R stations and a LPG facility in Camden. *Id.* at p. 38.



The total cost to ratepayers for the M & R Station Flood and Storm Mitigation sub-program inclusive of Years 1 through 8 is \$140 million. *Id.* at p. 39. For the Replacement of Cast Iron Pipeline and Associated Services sub-program, PSE&G plans to replace 750 miles of cast iron mains with plastic or coated steel, and increase the operating pressure for these mains. *Ibid.* Additionally, the Company will replace about 40,000 unprotected steel service pipes. *Ibid.* Excess flow valves will also be installed on these services which will be connected to residential homes. *Ibid.* The total anticipated cost to ratepayers for the Replacement Pipeline sub-program is approximately \$1 billion to be completed in 6 years. *Id.* at p. 42.

Mr. Cardenas claims that PSE&G's NGD program should be approved by the Board due to the "...widespread outages experienced with recent severe weather events, including Hurricane Irene, the October 2011 snow storm and Superstorm Sandy." *Id.* at p. 43. He further claims that the proposed mitigation measures will make the gas infrastructure more resilient to water damage. *Id.* at p. 43-44. However, for the natural gas side of the Company, Superstorm Sandy and earlier storms did not seriously affect the Company's operations as the gas system actually proved to be quite robust as shown by the statistics, statements and actions of the Company. As noted by Engineering Expert and Rate Counsel witness Edward A. McGee, the Company had minimal outages compared to the electric side or to non-storm years. In fact, during Sandy, PSE&G released hundreds of gas personnel from their regular duties to assist in electric service restoration. *T130:L18 to T131:L7* (Feb. 28, 2014).

PSE&G has admitted that the number of gas customers without service as a result of Superstorm Sandy was only 1,133. In Hurricane Irene, 1,392 gas customers lost

service, and 45 lost service for the Nor'easter of 2010. *RCR-G-POL-22*. PSE&G has approximately 1.8 million gas customers in its service territory. *T96:L14* (February 28, 2014). Less than one percent of gas customers were without service during Sandy while approximately 90% of electric customers were without service. For the three most recent storms, the number of PSE&G gas customer outages would not meet the Board's definition of a "Major Storm Event." *RC-4A*, p. 4 and 14. By comparison, for Superstorm Sandy, New Jersey Natural Gas was forced to curtail service to about 30,000 of its customers. *T57:L5 to T57:L10; T94:L2 to T94:L5* (February 28, 2014).

Despite the robust performance of the system, the Company proposed an expensive solution which includes replacement of a substantial number of pipes both within and outside potential flood areas. PSE&G proposes to spend \$1.04 billion dollars over six years to replace approximately 750 miles of cast iron mains and associated services. Of that total, 63 miles actually flooded during Superstorm Sandy; 280 miles are located in a FEMA flood zone; and 470 miles are in "proximity" to flood zones. Thus PSE&G's proposed solution replaces more pipes outside the flood area than within it. As will be explained below, PSE&G has not met its burden to demonstrate that its proposed NGD program is a prudent and cost-effective response to the Board's major storm event mitigation initiative and Rate Counsel recommends a more proportional and more focused response to the flooding issue. *RC-4A*, p. 4 and 14; *P-2*, p. 39, l. 882 to p. 42, l. 947; *RCR-G-INF-1; T131:L8 to T134:L3* (Feb. 28, 2014).

#### **B. Replacement of Cast Iron Pipeline and Services Sub-Program**

As noted, PSE&G is asking for approval to replace 750 miles of cast iron mains to address water intrusion in its gas infrastructure that resulted in minimal disruption to its

customers compared to its electric facilities. Specifically, the Company is asking for approval of its replacement pipeline sub-program using water infiltration or potential threat of flooding as the criteria for pipeline replacement. The Company's program is not justified in terms of storm response or hardening and any pipe replacement PSE&G undertakes should be based on prevention of leaks as directed by industry practices. Such a program would be far more consistent with the Company's obligation to provide safe, adequate and proper service. N.J.S.A. 48:2-21.

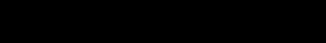
Rate Counsel witness, Dr. David E. Dismukes examined PSE&G's history of cast iron main replacement as compared to other gas utilities in NJ and in the Mid-Atlantic area. Id. at p. 32-33. Dr. Dismukes testified that the Company has not replaced its cast iron mains at a comparable rate to other NJ and regional gas utilities. *RC-2A*, Schedules DED 9 and DED 10. Despite this, PSE&G's leak rates and breaks per mile of cast iron pipeline have declined in recent years. Id. at Schedule DED 16. Yet, PSE&G is proposing to replace 125 miles of cast iron mains per year, for 6 years, which represents about a 30% increase over the highest amount of miles of pipeline replaced by PSE&G in a prior single year [2008]. Ibid. While it may be appropriate for the Company to increase its main replacement, any program to do so should set realistic and prudent goals. Moreover, the Company should not be permitted to use the guise of "storm hardening" in order to allow it to pay for main replacement through a contemporaneous recovery mechanism.

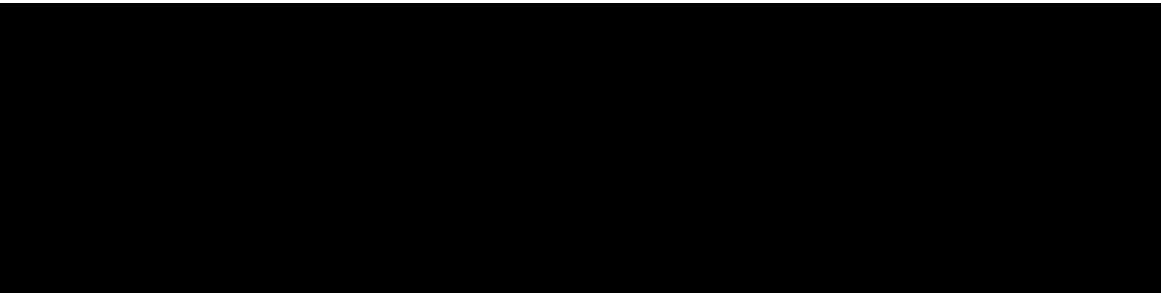
As Dr. Dismukes explained in his testimony, by utilizing proximity to flood zones as its major criterion, the Company's proposed pipe replacement program does not necessarily target the riskiest pipe segments in the Company's gas system. Pipe segments

bearing higher safety risks may lie outside flood areas as well as within them. Moreover, as Mr. McGee explained, while pipe replacement by itself can effectively be used to decrease the ability of flood waters to enter the piping system, this replacement can be accomplished without raising pipe pressures. By not increasing pressures, the size and cost of the program can be reduced by 63%. In the future, if the Company decided to replace pipes in the proximity area, pressure increases can be made in both the flood area and the proximity area with no need to re-replace the pipes in the flood area. *RC-4A*, pp. 3-4 and 14; *T132:L7* to *T133:L13* (Feb. 28, 2014). Thus, the Company has not demonstrated that its proposal is the most effective replacement program. *RC-2A*, pp. 40-44.


PSE&G's pipeline replacement program should also be rejected by the Board for improperly prioritizing the selection of mains to be replaced in violation of federally promulgated regulations and guidelines for gas distribution plant. *RC-2A*, p. 40. Mr. Cardenas states in his Direct Testimony that the principal reason for the prioritization of replacement of the cast iron mains and other services is flooding and proximity to FEMA flood zones. *P-2*, p. 41. *See also*, *P-1*, p. 29. However, the Federal Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA") has published regulations for utilities and other natural gas operators of distribution lines to use to assess risk factors when prioritizing pipeline replacement. 49 *CFR* § 192, Part P. (2014). Commonly referenced as a distribution integrity management program ("DIMP"), the PHMSA requires natural gas distribution operators to develop a written program which will "...ensure the integrity of its gas distribution system." 49 *CFR* § 192,1001, 1005 (2014). Among the requirements to be included in an operator's DIMP is

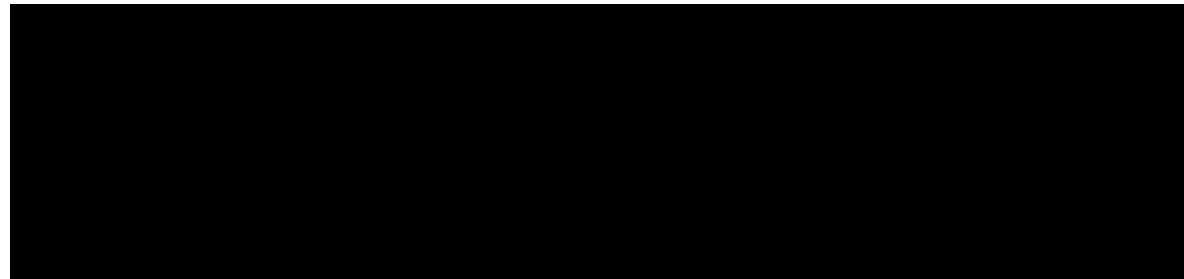
the evaluation and ranking of risk. 49 CFR § 192.1007(c)(2014). Gas operators must also rank risk assessments using eight separate categories of ‘threats’ to the system: corrosion; natural forces (which includes flooding); excavation damage; other outside forces; material; weld or joint failure; equipment failure; incorrect operation and other concerns. 49 CFR § 192.10079(a)(b)(2014). Of primary importance in a gas operator’s DIMP is demonstration of an “...effective leak management program.” 49 CFR § 192.1007(d)(2014).

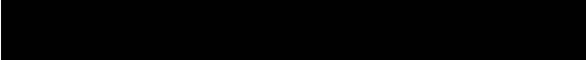
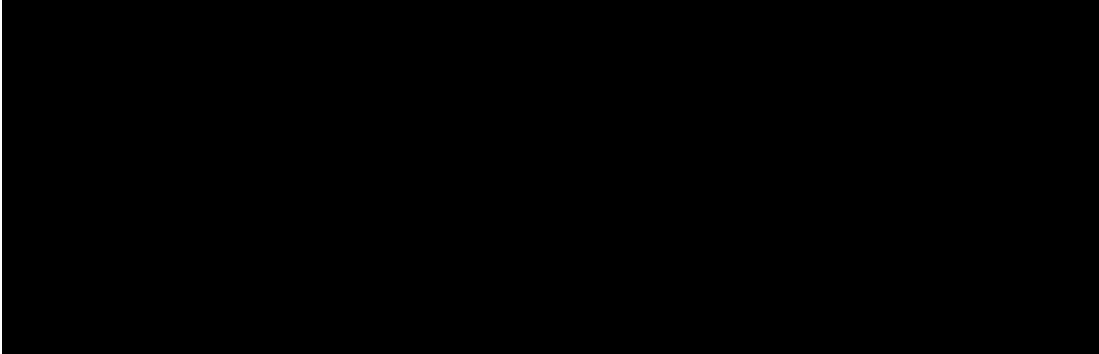
In compliance with the PHMSA’s regulations, PSE&G included its assessment of risk in its most recently filed DIMP dated December 21, 2012. *RCR-G-POL-11 (Update)*. Of particular relevance is the Company’s own ranking of risk assessment for both cast iron pipes and steel services. [BEGIN CONFIDENTIAL] 



 [END CONFIDENTIAL]

Rate Counsel witness Mr. McGee also addressed the appropriate standard for gas operators to determine pipeline replacement. *RC-4*, p. 7-9. Referring to the Company’s December 21, 2012 DIMP, Mr. McGee emphasized that [BEGIN CONFIDENTIAL] 





**END CONFIDENTIAL]** The Company

also admitted through discovery that the pipelines chosen for the Energy Strong Program are not necessary to maintain safe, adequate and proper service. See, *AARP-22*; specifically, *PSEG Response to AARP-3*.

The EFVs that the Company included as a safety feature would only be necessary because the Company proposed to raise pressures. They are not required at low pressure and the Company does not install them at low pressure. The EFVs do not provide protection against the most common causes of water intrusion, such as leaks. The proposed EFVs would only protect some of the customers in areas where pressure is proposed to be raised. The Company has over 600,000 high-pressure services – all of which they state are safely operating and only a small fraction of these are equipped with EFVs. *T134:L4 to T135:L18* (Feb. 28, 2014).

It also must be noted that PSE&G has not produced any specific gas operations or engineering studies or reports to support its request for over \$1.2 billion for the NGD. When asked whether PSE&G had conducted such a study concerning the gas portion of the Energy Strong petition, Mr. Cardenas could not provide either a yes or no answer. *T72:L20-25 to T73:L1-5* (February 28, 2014). Although Mr. Cardenas acknowledged that PSE&G supplied engineering studies to support the storm mitigation program for

electric facilities, he admitted that no such comparable report was completed for the gas portion of Energy Strong. *Ibid.* The Company has also stated that the proposed investments do not need to be made in order to provide safe, adequate, and proper service. *RC-4*, p. 8; *T130:L9* to *T130:L17* (Feb. 28, 2014). At a minimum, PSE&G should have produced an analysis or study of its proposed gas infrastructure mitigation alternatives to justify the request for \$1.2 billion from ratepayers.

Other critical deficiencies of PSE&G's replacement pipeline program include: (1) recovery of O & M without any accounting for cost savings, (2) pre-approval of program costs based on forecasted expenditures and contemporaneous recovery through a separate clause, (3) no anticipated date for the filing of the next base rate case, and (4) no mention of any performance benchmarks or metrics. *P-1*, p. 32-34. If the Board were to accept the replacement pipeline program as proposed by the Company, ratepayers would receive no assurances that their investment would produce less gas outages or that costs were prudently incurred.

In contrast, the Board has recently approved pipeline replacement programs for the state's other gas utilities which appropriately balance the needs of the utility to replace its infrastructure, and provide benefits at reasonable cost to ratepayers.<sup>35</sup> Certain provisions were common among all of the programs approved in those cases: (1) revenue recovery from ratepayers was delayed until each company's future base rate case; (2) prioritization was focused on reducing leaks from at-risk infrastructure; (3) the

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<sup>35</sup> I/M/O the Petition of New Jersey Natural Gas Company for Approval of the Safety Acceleration and Facility Enhancement Program, BPU Dkt. No. GO12030255, Order, (October 23, 2012) (NJNG SAFE Order October 2012); I/M/O the Petition of Pivitol Utility Holdings, INC. d/b/a Elizabethtown Gas for Approval of an Accelerated Infrastructure Replacement Program, BPU Dkt. No. GO12070693, Order, (August 21, 2013) (E'Town AIR Order August 2013) and I/M/O the Petition of South Jersey Gas Company to Implement an Accelerated Infrastructure Replacement Program, BPU Dkt. No. GO12070670, Order, (February 20, 2013) (SJG AIRP Order February 2013).

companies were required to satisfy performance metrics; (4) the companies accepted lowered rates-of-return to reflect reduced risk; (5) offsets were credited to ratepayers for O & M savings; and (6) sunset provisions were included to tie recovery to a base rate case in or about 3 years from approval of the program by the Board. *RC-2A*, p. 51-53. PSE&G's pipeline replacement proposal does not include these important safeguards which would allow an appropriate balancing of risks and benefits with its ratepayers.

The Board should reject the replacement pipeline sub-program, unless the Company adopts the same cost recovery mechanisms, performance metrics and provisions for regulatory review that have been implemented by the other NJ gas utilities for their pipeline replacement programs. PSE&G has not demonstrated that its replacement pipeline program satisfies the Board's request for a rational storm event mitigation plan. To the contrary, the record in the proceeding has only shown that PSE&G's replacement pipeline program is unwarranted.

### **C. Metering & Regulating Station Sub-Program**

As previously described, the Company's M & R station sub-program of NGD proposes to elevate nine M & R stations, one LNG plant and two LPG facilities over eight years at a cost to ratepayers of \$140 million. *P-2*, p. 37-39. Mr. Cardenas states that the Company's rationale for prioritizing the mitigation work for the first 5 years of the program is actual flooding or storm damage to the five M & R stations located in Linden (2), Newark, Jersey City and Harrison, and the fact that both the LNG plant located in Burlington and the LPG facility located in Harrison lost power and suffered equipment damage during Superstorm Sandy. *Id.* at p. 36-37. In Years 6-8, the Company plans to elevate M & R stations located in Camden, East Rutherford, Paterson and Brooklawn and



a LPG plant also located in Camden. *Id.* at p. 38. However, the Company included the M & R stations and LPG facility in Years 6-8 not because these sites experienced any actual flooding or damage but because they are located in FEMA – designated flood hazard zones. *Id.* at p. 36.

The Board should not grant PSE&G approval to implement a storm mitigation plan for any facilities that did not experience actual damage. Mr. Cardenas states that PSE&G chose the M & R stations for Years 1-5 of the program because they were ‘directly impacted’ by Superstorm Sandy. *Id.* at p. 36. ‘Directly impacted’ is defined by the Company as “...the site experienced major flooding, and physical damage as a result of the storm.” *RCR-G-POL-35*. PSE&G defined physical damage from Superstorm Sandy as “...M & R station equipment, electronic, or power supplies rendered inoperable by the storm’s surge (water damage).” *Ibid.* PSE&G states that it incurred about \$350,509 in expenses to repair the water damage to the facilities targeted for the first 5 years of the program. *RCR-G-POL-38*. However, no gas customer lost service due to the loss of power at the Burlington LNG plant and the Camden LPG facility. *S-PSEG-ES-42*. The Harrison LPG plant was out-of-service for seven days but no gas customers were impacted because the facility was not in use at the time. *Ibid.* PSE&G has also admitted that the M & R stations and LPG facilities located in Camden, East Rutherford, Paterson and Brooklawn did not experience storm damage. *RCR-G-POL-32*.

In the M&R portion of the Company’s proposal, Rate Counsel’s witness Mr. McGee agreed that there are some potential safety issues, *i.e.*, there is a risk of disrupting control of gas pressure at some of the supply points that operate around the clock, 365 days a year. *T135:L19 to T136:L20* (Feb. 28, 2014). Mr. McGee agrees that

the five stations that actually flooded should be hardened though elevation. Other M&R stations, however, did not flood and only operate for a limited number of days per year. Rate Counsel disagrees with the proposal to raise those stations at this time. Instead, Rate Counsel recommends that incremental repairs and improvements should continue as in past years. *RC-4A*, p. 16 and 19; *T135:L19* to *T136:L20* (Feb. 28, 2014).

Based upon the unrebutted evidence in the record, the Board should only allow PSE&G to implement its M & R Station sub-program concerning sites that actually experienced storm damage. Storm mitigation efforts as outlined by the Company for the Burlington LNG facility and other sites targeted for Years 6-8 should be rejected as premature not prudent and unnecessary, particularly given the minimal effect on customers.

**VII. IF THE BOARD APPROVES ANY SPENDING FOR ENERGY STRONG PROGRAMS, COMTEMPORANEOUS RECOVERY SHOULD BE REJECTED AND A RATE OF RETURN OF NO MORE THAN 6.97% AND A RETURN ON EQUITY OF NO MORE THAN 9.0% SHOULD BE ALLOWED**

The Company, in its petition, proposed an overall rate of return of 8.21% with a proposed return on equity of 10.3% for its contemporaneous cost recovery mechanism. *P-3Rev*, p. 3, Schedule SS-ES-2. The requested rate of return and return on equity are based on the Board's Orders adopting the settlement of the Company's most recent base rate cases, which were filed in 2009.<sup>36</sup> For the Board to adopt the Company's proposal would be an improper application of its statutory obligations since: 1) it would be inappropriate to use 2009 economic data in determining a 2014 cost of capital; 2) the Company's cost of capital has declined significantly since 2009; 3) the proposed contemporaneous cost recovery mechanism is much less risky than conventional base rate recovery upon which the Company's proposed rate of return and return on equity are based; and, 4) the Company's financial condition and credit metrics have improved since 2009, the last base rate case. Accordingly, if the Board approves any part of the Company's program, current economic data as applied to the Company's current

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<sup>36</sup> I/M/O the Petition of Public Service Electric And Gas Company for Approval of an Increase in Electric And Gas Rates And For Changes in the Tariffs for Electric and Gas Service B.P.U.N.J. No. 14 Electric And B.P.U.N.J. No. 14 Gas Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1 and for Approval of a Gas Weather Normalization Clause; a Pension Expense Tracker and for Other Appropriate Relief, Docket No. GR09050422, Decision and Order Approving Stipulation and Adopting Initial Decision for Electric Division, (June 7, 2010)(PSE&G 2009 Electric Base Rate Case Order) and I/M/O the Petition of Public Service Electric And Gas Company for Approval of an Increase in Electric And Gas Rates And For Changes in the Tariffs for Electric and Gas Service B.P.U.N.J. No. 14 Electric And B.P.U.N.J. No. 14 Gas Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1 and for Approval of a Gas Weather Normalization Clause; a Pension Expense Tracker and for Other Appropriate Relief, Docket No. GR09050422, Decision and Order Adopting Initial Decision With Modifications for Gas Division, (July 9, 2010) (PSE&G 2009 Gas Base Rate Case Order).

financial condition only support an overall rate of return of not more than 6.97% and an allowed return on equity of no more than 9.0%. *RC-7*, p. 6.

Matthew I. Kahal, Rate Counsel's expert witness, recommends an overall rate of return of 6.97%. As more fully set forth in Schedule MIK – 2, his recommendation is based on the Company's 2009 base rate case settlement capital structure and "the current (i.e., June 30, 2013 embedded cost of debt of 4.93%, customer deposits (about 1 percent of capital structure) at a cost rate of 0.11% and a cost of equity of 9%)." *RC-7*, p.6, Schedule MIK-2. Mr. Kahal disagrees with the Company's proposed use of the "unrealistic and out-of-date cost of debt of 6.14 percent from the 2009 rate case." *RC-7*, p. 7. The Company does propose to update its rate of return for the Energy Strong cost recovery mechanism in future Board approved base rate cases. However, the Company provides no indication as to when it would file its next base rate case, making such a proposal meaningless. *RCR-ROR-28*, *RC-7*, p. 6. Mr. Kahal, noting that the embedded cost of debt is neither "difficult nor controversial," argues that "an updated cost of debt (i.e., the 4.93 percent)" should be used in calculating the rate of return. *RC-7*, p. 7. His testimony states that the continued use of the out-of-date 6.14% cost tracker would effectively provide the Company with a return on equity of 11%, not 10.3%.

The calculation of the return on equity using the standard Discount Cash Flow ("DCF") method with current (not 2009) economic data yields a range of 8.6 to 9.1% for the electric company proxy group and a range of 8.7 to 10.2% for the gas company proxy group as calculated by Mr. Kahal in arriving at his recommended return on equity of 9.0%. *RC-7*, p. 7. Paul R. Moul, the Company's witness essentially agreed with Mr.

Kahal's DCF calculations, after Mr. Moul removed his "adjustments" for leverage and flotation included in his DCF estimate. *T30:L12-24, T34:L17-19* (March 7, 2014).

In selecting any ROE, the Board must balance a just and reasonable cost to ratepayers with the need for a regulated utility to earn a return that is sufficient to attract capital to finance its continued operations. The Company has failed to produce evidence sufficient for the Board to find that its proposed contemporaneous cost recovery mechanism is necessary to attract capital to finance its Energy Strong Program. In determining a just and reasonable rate of return the Board must make certain that the rates do not exceed the level required to assure the financial integrity of the regulated utility so that it may maintain its credit and attract capital, and are commensurate with returns on investments with comparable risks. See, Bluefield Water Works & Improvement Co. v. Public Serv. Comm'n of W. Va., 262 U.S. 679, 692-93 (1923). Rates set by the Board, "can never be more than the reasonable worth of the service supplied; neither can it be fixed so low as to be confiscatory." Pub. Serv. Coordinated Transport. v. State, 5 N.J. 196, 225 (1950).<sup>37</sup>

### **1. Using a Rate of Return Established in 2009 is Inappropriate**

As set forth in the Company's petition and supported by its witness, Mr. Steven Swetz, the Company is proposing to utilize the overall cost of capital from the Company's most recent base rate case.<sup>38</sup> According to Mr. Swetz, that cost of capital "is 8.21% (currently 11.8520% on a pre-tax basis and 7.01% on a net of tax basis), based on a ROE of 10.3%, an equity to capitalization ratio of 51.2%, and current tax rates." (P-

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<sup>37</sup> The Board must also consider, with respect to the instant Energy Strong petition, that the judicial guidance noted above was provided in the context of a base rate case and the courts did not consider the reduced risk from a contemporaneous cost recovery mechanism, such as that proposed by the Company here.

<sup>38</sup> PSE&G 2009 Electric Base Rate Case Order and PSE&G 2009 Gas Base Rate Case Order.

3Rev, p. 3) The currently authorized 10.3% ROE was based on a petition filed in 2009 and was the result of a settlement in the last base rate case, reflecting compromise by several parties on many different issues.<sup>39</sup>

Mr. Kahal noted that in the four years since the Company's last base rate case financial market conditions have changed substantially, describing it as "highly improper to employ a stale rate of return approved in the 2009 rate case for cost recovery to begin in 2014 and extending for several years. RC-7, p.6, 9. Mr. Moul, while agreeing that market conditions have changed and that interest rates are lower today than the 2009 base rate case, concludes that focusing on "today's interest rates provides an unsound basis to cut the Company's equity return." P-5, p. 7-15. Some adjustment is required to a rate of return based on market conditions that existed five years ago and are acknowledged to have changed significantly since. It is inconsistent with the Board's statutory obligation to establish just and reasonable rates to ignore changed market conditions.

The Company's cost of capital has declined significantly since 2009. Mr. Kahal prepared a schedule (RC-33) showing capital costs from 2002 through calendar year 2013, which demonstrates a general declining trend in capital costs from those used in the 2009 base rate case. RC-7, p. 10, l. 19-21. The evidence clearly demonstrates that the current cost of capital is extremely low by historical standards, even when compared to the Company's 2009 base rate case, a time of turmoil in the financial markets following the great financial crisis of 2008/2009.

As indicated on Schedule MIK-2, (RC-33) the indicators of declining capital costs include the annualized inflation rate, 10-year Treasury yields, 3-month Treasury bill yields and Moody's single A and triple B yields on long-term utility bonds. The schedule

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<sup>39</sup> PSE&G 2009 Electric Base Rate Case Order, p. 3.

demonstrates a general declining trend in capital costs, as noted above. For the past several years, short-term Treasury rates have been close to zero. The single A utility yield has moved down from 6.5% in 2009 to 4.5% in 2013 and the triple B utility yield has moved down from 7.1% in 2009 to 5.0% in 2013.

Mr. Kahal noted that “many investors tend to view utility stocks and bonds as alternative investment vehicles for portfolio allocation purposes” and that financial markets consider low long term interest rates to lower the utility cost of equity. *RC-7*, p. 13. It is expected that this period of low capital cost will continue as a result of the Federal Reserve Board of Governors (“The Fed”) policy to make liquidity available to promote economic activity. These downward pressures are expected to continue with respect to long-term interest rates as Mr. Kahal cited a “consensus” forecast, concluding that “both the near-and long-term economic outlooks are indicative of modest economic growth and low inflation, implying low market costs.” *RC-7*, p. 13, l. 20-22.

At the same time, the Company’s financial condition has improved. PSE&G is a very low-risk utility company as confirmed by various credit rating reports.<sup>40</sup> Bradford Huntington testified on behalf of the Company with respect to the credit quality and credit rating issues associated with the Energy Strong Program. *T47:L17-20* (March 7, 2014). Mr. Huntington confirmed that the credit rating agencies Moody’s and Standard & Poor’s (“S&P”) have upgraded PSE&G’s ratings since the last base rate case. Mr. Huntington also confirmed that PSE&G’s S&P credit rating is consolidated with the “riskier” parent, PSEG, for rating agency analysis. *T49:L7-T50:L18* (March 7, 2014). When considering the rate of return required in attracting capital, the market is guided by

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<sup>40</sup> *RCR-ROR-4*. FitchRatings – upgraded from “BBB+” to “A-“ on July 27, 2012; Moody’s – “PSE&G’s A3 senior unsecured rating is supported by a low risk T&D business model...”; Standard & Poor’s – “Lower-risk, monopolistic, rate-regulated utility...”

the rating agencies' analyses and it is appropriate for the Board to consider these risk analyses in setting an appropriate rate of return. In addition, the Value Line Investment Survey has upgraded the PSEG Safety Rating to "1" since the conclusion of the last rate case, undoubtedly due to the improving risk profile of PSE&G. *RC-30*. For this reason as well, reliance on 2009 rates is inappropriate.

## **2. Mr. Kahal's DCF Analyses Yield a Recommended 9% ROE**

Determining a utility's cost of equity, or the return sought by investors to acquire or hold that company's common stock, requires careful balancing. A return greater than necessary would overcharge customers and a return less than necessary could weaken the utility's financial condition and undercompensate shareholders. Cost of equity is a market based price and is determined by the economic forces of supply and demand in the financial markets. Because market cost of equity cannot be objectively observed, regulators must rely on analytic techniques in developing a reasonable estimate. A widely accepted model familiar to this Board, financial analysts and the regulatory community is the DCF model. The two key factors that determine market price are: 1) the capital market conditions including, inflation, monetary policy, investor behavior, asset allocation preferences and the general business environment; and, 2) the business and financial risks of the particular company being examined. The DCF model assumes that any publicly-traded common stock will sell at a price that reflects the discounted stream of cash flows expected by investors. The DCF analysis estimates the investor discount rate. Mr. Swetz's testimony did not directly address these factors or estimate the cost of equity in his direct testimony (relying on the 2009 base rate case settlement). *RC-7*, p. 16-18.



In discovery the Company indicated that it relied on the Rebuttal Testimony of Mr. Moul, dated February 4, 2013 and submitted in the Solar dockets, Docket No. EO12080721 which included a DCF analysis. *RCR-ROR-9*. In conducting a current analysis, Mr. Kahal relied upon the proxy group of publicly traded electric and gas utility companies previously selected by Mr. Moul. Mr. Kahal's DCF analysis for his electric proxy group is summarized on page 1 of Schedule MIK-4, where he concludes an indicated return on equity in the 8.6 to 9.1% range. Mr. Kahal, for his gas utility DCF analysis, uses a proxy group comprised of companies used by Mr. Moul in recent rate cases. *RC-7*, p. 26. Mr. Kahal's DCF analysis for the gas proxy group is shown on Schedule MIK-6, page 1, and indicates a return on equity in the 8.7 to 10.2% range. Mr. Kahal concludes that a reasonable range for a return on equity from the DCF studies he performed for both electric and gas proxy groups are 9.0 to 9.5%, with a midpoint of 9.25%. *RC-7*, p. 28. Mr. Kahal recommends a return on equity toward the lower bound of that range, 9% because of the very low risk associated with the Company's proposed contemporaneous cost recovery mechanism. *RC-7*, p. 33. This figure is modestly lower than his 9.25% midpoint cost of equity result for the proxy groups.

Mr. Kahal also performed a Capital Asset Pricing Model ("CAPM") analysis as it is also used on occasion by regulators and is a well understood method in estimating the cost of equity. *RC-7*, p. 29. The results of Mr. Kahal's CAPM analysis are shown in *RC-34* (updated at the hearing to reflect the most current market information) and indicate a range between 7.3 to 9.4%, with a midpoint of 8.3%. *RC-7*, p. 30. The CAPM analysis confirms the reasonableness of Mr. Kahal's recommendation that any ROE awarded by the Board should not exceed 9%.

### 3. The Company's Rebuttal Testimony

The Company offered the rebuttal testimony of Mr. Moul and Mr. Huntington, in response to Mr. Kahal's direct testimony. Mr. Moul's rebuttal testimony responds to both Rate Counsel witnesses Ms. Crane and Mr. Kahal. Mr. Moul's testimony, with respect to Ms. Crane's argument (and Mr. Kahal's view) that base rate recovery is preferable to the Company's proposed cost recovery mechanism, repeats the assertions contained in Mr. Huntington's rebuttal testimony, which was limited to a discussion of credit quality and credit rating issues pertaining to the Energy Strong cost recovery.

Mr. Moul's central critique of Mr. Kahal's recommendation that a base rate method of recovery or ROE recommendation of 9% for contemporaneous cost recovery, is, that "It would be foolhardy for the Company to undertake new capital investment that is not required under its statutory mandate if it cannot realize a return that is available on its other investments, (i.e., its rate base)." P-5, p.3. Mr. Moul accuses Mr. Kahal of ignoring the "reality that the Company can choose between alternative investments" in arguing for both contemporaneous cost recovery and an ROE of 11%. P-5, p. 3. Mr. Huntington's testimony is more direct on the issue, stating: "[T]he rating agencies would view a decision to undertake Energy Strong absent a contemporaneous cost recovery mechanism as an imprudent financial policy by management." P- 6, p. 9. In considering cost recovery in a base rate case, Mr. Huntington stated "PSE&G would be asking our equity investors to invest cash into Energy Strong with no return, which would appear to be a violation of the parent company's fiduciary duties." P-6, p. 6. Mr. Huntington concludes that, absent Board approval of its contemporaneous cost recovery proposal, "Our Company *will not pursue* such a financial policy." (emphasis added) P- 6, p. 9.

When questioned under cross-examination Mr. Huntington (Vice President and Treasurer of PSE&G) made clear that it was his testimony that PSE&G would not pursue Energy Strong without contemporaneous returns. *T52:L23-24*. (March 7, 2014)

However, when questioned further as to the ROE component of the cost recovery proposal, Mr. Huntington retreated from his testimony that it would be a violation of the Company's fiduciary duties claiming it was "not my area of expertise." *T53-55:L16-6*. (March 7, 2014)

As noted earlier, it is the Company's burden to prove the elements of each claim in its petition, including Board approval of the cost recovery mechanism it proposes. The Company offered Mr. Huntington's testimony in support of its claims, specifically Schedule BDH-ES-2, to demonstrate the effect on PSE&G's credit metrics with \$2.6 billion in Energy Strong investments without contemporaneous cost recovery. *P-6*, p. 7. This schedule is meaningless and is of no use to the Board in considering the issues before it. Mr. Huntington, under cross-examination, admitted that Schedule BDH-ES-2 does nothing more than impose the total \$2.6 billion five-year capital investment cost of the Energy Strong proposal on PSE&G's actual 2013 financial results. *T56:L7-10*. (March 7, 2014) This schedule does not assist the Board in considering the Company's arguments for the contemporaneous cost recovery because it; 1) did not consider or reflect the fact the \$2.6 billion Energy Strong investment will occur over several years, instead of all at once; 2) did not consider or reflect an analysis of the credit metrics assuming traditional base rate case cost recovery instead of contemporaneous cost recovery; 3) did not consider or reflect an analysis of the credit metrics assuming a normal (i.e. 50/50) mix of debt and equity to finance Energy Strong, rather than an

extreme and unrealistic 100% debt financing; 4) did not consider or reflect an analysis of a lower return on equity and/or cost of debt than the return on equity or rate of return requested by the Company in its petition; and 5) did not, as admitted by Mr. Huntington, include *any* alternative credit metric scenarios using alternative financial or regulatory assumptions. *T57:L12-25*. (March 7, 2014).

Mr. Moul's rebuttal testimony is the only cost of equity evidence the Company has put before the Board supporting its 10.3% ROE claim. *T19:L5-8* (March 7, 2014). In discovery the Company referenced the fact it was relying on Mr. Moul's testimony from the Solar dockets (*RCR-ROR-9*) however, that testimony was not introduced into the record or produced in discovery and is therefore not before the Board for consideration. Mr. Moul's analysis as set forth in his testimony, claims to support an 11% ROE for the contemporaneous cost recovery mechanism proposed by the Company. However, the Company has not adopted its own witness's analysis. *T19:L13-25* (March 7, 2014).

Both Rate Counsel witness, Mr. Kahal and the Company's witness, Mr. Moul, essentially agree that the DCF method of analysis results in an estimated 9% ROE based on current economic data, after removing the "adjustments" recommended by Mr. Moul. *T30:L12-24, T34:L17-20* (March 17, 2014) Therefore it is important for the Board to consider the need for the "adjustments" Mr. Moul claims are necessary. Mr. Moul has recommended that two adjustments be made to the DCF results. The first is what Mr. Moul describes as a "leverage adjustment," which he describes as "an adjustment to recognize the change in leverage between the market-determined capitalization and the book value capital structure that is used in the rate setting process." *P-5*, p. 20. Mr.

Moul also includes a “flotation” adjustment that represents an allowance for the underwriter’s discount and commission and company issuance expenses. *P-5*, p. 34.

Mr. Moul testified that in the past 10 to 15 years he has testified extensively as to the cost of capital and has always used the DCF method in his testimony, but only includes an leverage adjustment “when its warranted.” *T28:L2-11* (March 7, 2014) Mr. Moul’s leverage adjustment has been accepted in some degree in a few cases by the Pennsylvania Public Utility Commission, as noted in his rebuttal testimony. *P-5*, p. 30. However, it has not been used by Pennsylvania since 2007 and has not been used by any other federal or state utility commissions in approving utility ROE awards. *T26-29:L14-12* (March 7, 2014). It is also not an adjustment that has been employed by other rate of return experts, be they experts for Commission Staffs, consumer organizations or even utilities. It is improper and outside the mainstream of accepted practice in applying the DCF and CAPM models.

Mr. Moul also includes a “flotation adjustment” of about 15 basis points, representing an estimate of equity issuance costs. Under cross-examination, Mr. Moul agreed with a Value Line report for PSEG, *RC-30*, indicating that between 2006 and 2019 the number of shares outstanding for PSEG, the Company’s parent, has not and is not anticipated to materially change. From that Mr. Moul agreed that PSEG has not had a need to access capital markets since 2005 and he conceded that he had no information that would indicate that the number of shares outstanding is anticipated to change into the future, at least until 2019. *T23-24:L3-2* (March 7, 2014). As a factual matter, PSE&G simply has no flotation expense to recover from its customers, nor is this expected to change for the foreseeable future. This evidence refutes Mr. Moul’s claim that any

floatation adjustment is needed to the DCF or CAPM results, in an attempt to justify a higher ROE for the Company.

#### **4. Conclusion**

For the foregoing reasons, if the Board does approve any Energy Strong investments, it should not allow recovery of those investments through a contemporaneous surcharge and should apply an overall rate of return of 6.97% with a return on equity of no more than 9.0%.

## VIII. CONCLUSION

For the foregoing reasons and based on the record before it, the BPU should reject the Energy Strong proposal and the associated cost recovery mechanism as proposed by PSE&G. The Company has failed to demonstrate that the proposed electric and gas programs are reasonable, prudent or cost-effective. It has also failed to show that they will bring meaningful benefits in the form of greater resiliency to storm events. PSE&G's proposed cost recovery mechanism is unreasonable and provides a windfall to shareholders and excessive rate increases to ratepayers.

If the Board determines that some incremental level of investment is appropriate to meet the challenges of extreme weather conditions, the program should be narrowly tailored to include only those investments that are cost-effective and will bring storm resiliency benefits. Performance metrics and oversight should be put in place to ensure these results. Rather than simply approving PSE&G's selection of costly alternatives in its electric sub-program, the Board should require the Company to undertake detailed analyses to support the prudence of each element of its proposal and reduce the cost estimates to prudent amounts. In its gas program, any spending should be limited to M&R stations and mains that suffered actual damage or flooded in the recent storms.

If the Board authorizes Energy Strong investments, those investments should be reviewed and recovered through a base rate proceeding to ensure that ratepayer protections are upheld and that shareholders are not over-compensated. PSE&G should not be allowed to recover those investments through a contemporaneous surcharge and the Board should apply an overall rate of return of 6.97% with a return on equity of no more than 9.0%. The Board should also require that PSE&G continue to spend its

current level of investment in its distribution system, in addition to investment relating to Energy Strong and new business. The Board should ensure that the Company meets this commitment and does not shift capital resources that would otherwise be invested in the utility into the Energy Strong Program.