PUBLIC VERSION

BEFORE THE STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF PUBLIC SERVICE ELECTRIC AND GAS COMPANY FOR APPROVAL OF EXTENSION OF A SOLAR GENERATION INVESTMENT PROGRAM AND ASSOCIATED COST RECOVERY MECHANISM AND FOR CHANGES IN THE TARIFF FOR ELECTRIC SERVICE B.P.U.N.J. NO 15 ELECTRIC PURSUANT TO N.J.S.A. 48:2-21 AND N.J.S.A 48:2-21.1	)	BPU Docket No. EO12080721

DIRECT TESTIMONY OF DAVID E. DISMUKES, PH.D.
ON BEHALF OF THE
NEW JERSEY DIVISION OF RATE COUNSEL

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BPU DOCKET No. EO12080721

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is David E. Dismukes. My business address is 5800 One Perkins Place Drive, Suite 5-F, Baton Rouge, Louisiana, 70808.

Q. PLEASE STATE YOUR OCCUPATION AND CURRENT PLACE OF EMPLOYMENT?

A. I am a Consulting Economist with the Acadian Consulting Group ("ACG"), a research and consulting firm that specializes in the analysis of regulatory, economic, financial, accounting, statistical, and public policy issues associated with regulated and energy industries. ACG is a Louisiana-registered partnership, formed in 1995, and is located in Baton Rouge, Louisiana. A summary of my qualifications is provided in Attachment A.

Q. DO YOU HOLD ANY ACADEMIC POSITIONS?

A. Yes. I am a Professor, Associate Executive Director, and Director of Policy Analysis at the Center for Energy Studies, Louisiana State University ("LSU"). I am also an Adjunct Professor in the E. J. Ourso College of Business Administration (Department of Economics), an Adjunct Professor in the School of the Coast and the Environment

(Department of Environmental Sciences), a co-director of the Coastal Marine Institute, and member of the graduate faculty at LSU. My primary responsibilities at LSU in these capacities include: teaching; engaging in different academic, professional, and civic service activities; administering and supervising the work of various research units; and conducting my own research on energy and environmental policy issues.

Q. DOES YOUR TESTIMONY PROVIDE A DETAILED DECRIPTION OF YOUR EDUCATION AND EXPERIENCE?

A. Yes. Attachment A to my testimony provides my academic vita that includes a full listing of my publications, presentations, and pre-filed expert witness testimony, expert reports, expert legislative testimony, and affidavits.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been retained by the New Jersey Division of Rate Counsel ("Rate Counsel") to provide an expert opinion to the Board of Public Utilities ("BPU" or "Board") on the economic, regulatory, and renewable energy policy issues associated with the Solar 4 All Extension ("SFAE") proposal submitted by Public Service Electric and Gas Company ("PSE&G" or "the Company"). Andrea C. Crane of The Columbia Group is also filing testimony on behalf of Rate Counsel with regard to cost recovery and other financial issues.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. My testimony is organized into the following sections:

- Section II: Summary of Recommendations
- Section III: Overview of the SFAE Proposal

- Section IV: The SFAE is Unneeded and Inconsistent with Current and Anticipated SREC Market Conditions
- Section V: The SFAE Suffers from Numerous Program Design Flaws
- Section VI: The SFAE Will Result in Negative Net Economic Benefits
- Section VII: Conclusions and Recommendations

II. SUMMARY OF RECOMMENDATIONS

Q. WOULD YOU PLEASE SUMMARIZE YOUR RECOMMENDATIONS?

A. I recommend that the Board reject the Company's SFAE proposal since:

1) The SFAE is not needed to meet New Jersey's solar energy goals and, if approved, could be destabilizing to New Jersey solar markets. The New Jersey solar market is already over-supplied, and anticipated to be over-supplied, or at least adequately-supplied, for many years into the future.
2) The SFAE suffers from a number of program design flaws since it is based upon market segments that are: (a) poorly and/or ambiguously defined; (b) lacking in any detailed analytic support; (c) comprised of exceptionally high costs; and (d) unrealistic typical program sizes.
3) The SFAE will result in unreasonably high rate impacts and negative net economic benefits. If approved, the SFAE will likely reduce New Jersey economic output by some $185.81 million and employment by some 7,222 job-years.

III. OVERVIEW OF THE SFAE PROPOSAL

Q. WILL YOU PLEASE DESCRIBE THE COMPANY'S SFAE PROPOSAL?

A. The Company is proposing to extend its current Solar 4 All ("SFA") program across four different market segments that include: (1) landfills and brownfields; (2) warehouses; (3) parking lots; and (4) pilots and demonstrations. The goal of the program is to increase solar installations "in a manner timed to coincide with the increase in New Jersey's [solar] Renewable Portfolio Standards under recently enacted legislation."[1] The total program investment cost is anticipated to be $690 million[2] and result in the installation of 136 megawatts[3] ("MWs") of solar capacity.

Q. DOES THE COMPANY HAVE ANY OTHER UTILITY-BASED SOLAR ENREGY PROGRAMS?

A. Yes, the Company has several other utility-based solar energy programs. The original SFA program is estimated to have installed nearly 100 MWs of solar capacity.[4] In addition, the Company has an approved Solar Loan Program ("SLP") comprised at this point of two different phases, providing loans of some $248 million to support over 80 MWs of solar capacity installation.[5] The Company has a pending application to extend the SLP into a third phase that will provide up to $193 million in loans to support development of 97.5 MWs of solar capacity installations.[6]

Q. HOW WILL SFAE PROJECT COSTS BE RECOVERED FROM RATEPAYERS?

A. The Company proposes to recover the costs of the SFAE program through a new cost component of its existing regional greenhouse gas initiative recovery charge

[1] Company Petition, ¶ 1.
[2] Company Petition, ¶ 3.
[3] Company Petition, ¶ 1.
[4] *See* http://www.pseg.com/info/media/solar/index.jsp?WT.mc_id=rdsolar20110208.
[5] *See* http://energy.gov/savings/pseg-solar-loan-program.
[6] Company Petition, ¶ 3.

("RRC") called the Solar Generation Investment Extension Program Component ("SGIEPC").[7] The Company estimates a cumulative rate increase of some $907 million over the next 25 years, or by some $268 million on a net present value ("NPV") basis.[8] Average annual rate increases are estimated by the Company to be around $36.5 million over the next 25 years.[9]

IV. THE SFAE IS UNNEEDED AND INCONSISTENT WITH CURRENT AND ANTICIPATED SREC MARKET CONDITIONS

a. Historical Background

Q. CAN YOU PLEASE DISCUSS THE ORIGINS OF THE COMPANY'S ORIGINAL SFA PROGRAM?

A. Yes. In January 2008, New Jersey signed into law an Act commonly known as the "RGGI Law" or "RGGI Statute" (P.L. 2007, c. 340, effective January 13, 2008). The RGGI Law included a provision, codified at N.J.S.A. 48:3-98.1, which allows electric and gas public utilities to provide and invest in energy efficiency, conservation, and renewable energy programs on a regulated basis in order to facilitate New Jersey's compliance with the multi-state emissions reduction compact known as the Regional Greenhouse Gas Initiative ("RGGI"). The RGGI Law also required the Board to promulgate rules facilitating the 180 day review process of utility proposals allowed under the new law. Soon after passage of this bill, PSE&G requested approval for the SFA, originally proposed as a $515 million capital investment in various utility-owned

[7] Direct Testimony of Steven Swetz, 7:15-19.
[8] *See* Schedules SS-S4AE-2, SS-S4AE-3, and SS-S4AE-5 attached to the Direct Testimony of Stephen Swetz.
[9] *Ibid.*

solar applications.[10] These applications were assigned to two separate segments, the first consisting of installing solar units on 200,000 utility poles throughout PSE&G's service territory, and the second focusing on centralized solar – the development of solar gardens and roof-top installations at facilities owned by the utility and at third-party sites.[11] A summary of the SFA's program structure, and changes incurred over the course of that program's implementation, has been provided in Schedule DED-1.

Q. PLEASE DESCRIBE THE NATURE OF SOLAR MARKETS AT THE TIME OF THE COMPANY'S ORIGINAL SFA PROPOSAL.

A. The Company's original SFA proposal was offered at a time when New Jersey's solar energy markets were falling short of the Board's solar Renewable Portfolio Standards ("RPS") requirements. Schedule DED-2 provides a chart comparing the Board's annual solar energy requirements versus actual solar generation. New Jersey was experiencing a shortfall in the number of available Solar Energy Renewable Certificates ("SRECs") leading up to Energy Year 2012, the first year in which the solar goals were met. The shortfall between the Board's solar energy requirements and the actual SRECs surrendered for compliance purposes during this time period were met with Solar Alternative Compliance Payments ("SACPs").

Q. DID THESE SOLAR ENERGY MARKET CONDITIONS HAVE ANY NEGATIVE IMPACTS ON RATEPAYERS?

A. Yes. The market shortfall, coupled with the purchase of relatively higher cost SACPs, drove up the overall average price of solar energy compliance during the time

[10] Company response to RCR-P-5.

[11] *See* http://www.njcleanenergy.com/renewable-energy/programs/utility-financing-programs/utility-financing-programs/pseg#1.

period leading up to the Energy Year 2012. This increase in costs was borne by ratepayers in their monthly electricity bills. Market clearing prices for SRECs, for example, increased to levels very close to their "capped" price as reflected by the SACP. Schedule DED-3 provides a chart showing the historic trend between SREC and SACP prices, including those seen during this time period. SREC prices, reflecting market scarcity of the period, prices, and consistently traded within 20 percent of the SACP, and even reached a level some 95 percent of SACP from June, 2010 through August of 2010.

Q. DID THE BOARD TAKE ANY OTHER POLICY ACTIONS DURING THIS TIME PERIOD TO REMEDY THE SOLAR RPS SHORTFALL?

A. Yes. The Board took a number of actions to address some of these challenges immediately prior to the Company's original SFA filing. These changes, set forth in the Board's December 6, 2007 Order (BPU Docket No. EO06100744) (the "2007 Solar Transition Order"), were the result of a proceeding that ultimately defined the "transition" by which the Board's prior rebate-based approach to stimulating solar energy development would progress to one more reliant on competitive SREC markets. This new market design included the establishment of a qualification life for solar energy projects, increasing the trading life of an SREC from one to two years, increasing the SACP from its prior-established levels, and the creation of an eight-year SACP pricing schedule that, while decreasing over time, could not be modified once approved by a Board Order.

Q. WHAT WAS THE PURPOSE OF THE BOARD'S ACTIONS IN THIS 2007 SOLAR TRANSITION ORDER?

A. To create greater regulatory certainty since solar energy shortfalls at the time were thought to be a function of regulatory uncertainty. The prior market structure, based on administratively-determined refunds, and a commodity-based SREC market, were the direct result of administrative action taken by the Board. As a result, potential Board changes to RPS goals, or changes in the rules for selling or buying SRECs, were perceived as a regulatory risk, increasing the costs for financing and developing solar energy, which in turn could lead to unnecessary ratepayer impacts. While many of the steps taken by the Board in its 2007 Solar Transition Order were thought to enhance regulatory certainty, most parties at the time thought more could be done to enhance regulatory certainty through some form of long-term contracting.

Q. WHY WAS LONG-TERM CONTRACTING THOUGHT TO BE COMPLIMENTARY TO THE BOARD'S MARKET RE-DESIGN?

A. At the time, long-term contracting (commonly referred to then as a form of "securitization") was thought to be able to bring considerable benefits to ratepayers depending upon its scope and structure, particularly for the development of those solar projects with higher unit costs and relatively longer paybacks. The Board's 2007 Solar Transition Order directed stakeholders to reconvene to address specific means for "securitizing" solar energy projects in New Jersey. Thereafter, stakeholders representing the Board's Office of Clean Energy ("OCE"), ratepayers, the solar industry, and the EDCs met to discuss a framework for securitization based upon long term contracting. This framework, memorialized in a Board Order dated August 7, 2008 (BPU Docket No. EO06100744) ("August 7, 2008 Order"), required each of the EDCs to establish long-term contracting plans. These plans are based upon competitive procurement processes

whereby solar projects offer bids for 10 or 15 year contracts, and EDCs guarantee winning bids a levelized price over the offered time period. Winning bids are selected on a least-cost basis and each project is paid its offered bid, not the market clearing bid price.

Q. HOW DO THESE POLICY INITIAVES RELATIVE TO SECURITIZATION RELATE TO THE COMPANY'S SOLAR PROPOSALS?

A. The Board's August 7, 2008 Order allowed EDC flexibility in the type and form of program that would be allowed for program "securitization." While the Board established a preference for the long-term SREC contracting approach in its August 2008 Order, it recognized other approaches that included the prior-approved stipulation authorizing the first phase of the Company's SLP.

Q. WHAT WAS THE COMPANY'S BASIS FOR MAKING THE ORIGINAL SFA PROPOSAL?

A. The Company's SFA program was based upon several considerations including:

- Helping New Jersey "address the current and future shortfall in meeting the solar RPS requirement." The Company noted that their original proposal would "help the State catch up to current solar RPS targets and [with] additional investment by other industry members will continue to help close the [solar investment] gap on a going-forward basis."[12]
- Facilitate solar investment in the face of "the current tightening of capital markets" that are "not only seeing a lack of capital flowing, but also a

[12] Docket EO09020125, Direct Testimony of Alfredo Z. Matos, 6: 3-9.

higher cost of capital in the economy."[13]. According to the Company "utility investment in solar systems" is "essential if the State is to meet the solar RPS requirements."[14]

- The program was also offered to "help drive down production costs and spur the market toward price competitiveness."[15]
- The original program was also offered to "help guide solar investment toward sectors in which there are additional societal benefits from such investments."[16]

Q. HAVE SOLAR MARKETS CHANGED SINCE THE TIME OF THE COMPANY'S ORIGINAL SFA PROGRAM APPROVAL?

A. Yes. New Jersey solar energy markets have undergone a number of changes over the past two years that have reversed the solar underinvestment trends creating concerns for the Board and other policy makers in the 2007 time period. While the Board's actions likely had some positive influence on reducing regulatory uncertainty and improving solar installations relative to the solar RPS requirements, there were a number of other rapidly changing market conditions that began in the 2008 that had an equal, if not more important impact on New Jersey solar energy markets.

Q. CAN YOU PLEASE EXPLAIN THOSE MARKET CHANGES?

A. Yes. There were a number of external market changes starting in 2008 that ultimately set up a supply-demand mismatch in solar markets not uncommon to many other capital-intensive energy markets. Since 2008, the "demand" side of the market,

[13] Docket EO09020125, Direct Testimony of Alfredo Z. Matos, 6: 13-17.
[14] Docket EO09020125, Direct Testimony of Alfredo Z. Matos, 6: 18-20.
[15] Docket EO09020125, Direct Testimony of Alfredo Z. Matos, 6: 1-3.
[16] Docket EO09020125, Direct Testimony of Alfredo Z. Matos, 7: 6-7.

comprised of the demand for solar energy (i.e., SRECs), has declined while the "supply" side of the market, consisting of the provision of SRECs and driven by both existing and new solar installations, has increased.

Q. HOW HAS THE DEMAND FOR SRECS CHANGED OVER THE PAST FEW YEARS?

A. On the demand side, the great economic recession of 2008 led to a significant reduction in electricity demand as seen in Schedule DED-4. This resulted in a significant reduction in the need for SRECs, since most solar RPS requirements and other similar mandates - in New Jersey as well as other places around the world - are driven primarily by formulae tied to some percentage of electricity sales or generation. European solar markets also saw significant cut-backs in solar energy demand as many government-supported subsidies, primarily in the form of feed-in-tariffs were dialed back in the face of the European financial crises and a recognition that in many countries, like Spain and Germany, these administratively-determined incentives were likely too generous.[17]

Q. HOW HAS THE SUPPLY OF SRECS CHANGED OVER THE PAST FEW YEARS?

A. The supply side of the solar market has perhaps seen the more dramatic changes over the past several years. Solar panel manufacturing sector has increased considerably over the past several years, fueled in large part by the growth in solar generation mandates, set-asides, and financial incentives in the United States and abroad. This growth likely put the solar panel manufacturing sector in a position to overshoot the market even absent of the recession-induced contractions in solar mandate requirements.

[17] *See,* Dr Elena Ares, Oliver Hawkins, and Paul Bolton; April 5, 2012; "Feed-in Tariffs: Solar PV Review"; British House of Commons Library: Science and Environmental Section.

The global economic contractions, combined with the increase in solar panel manufacturing, has led to an extreme situation of over-supply that some would argue was exacerbated by anti-competitive Chinese solar production and trade practices that were occurring concurrently with the global recession.[18]

Q. HOW DO MARKET OVER-SUPPLY CHALLENGES OF THIS NATURE TEND TO SOLVE THEMSELVES?

A. Over time, these types of excess supply situations are typically corrected by either a significant reduction in supply (i.e., SRECs) or a significant increase in demand (i.e., the solar RPS or mandate), or in some instances, a combination of both.

Q. DID THE RECENTLY ENACTED SOLAR ENERGY LAW ATTEMPT TO CORRECT THIS EXCESS SUPPLY SITUATION?

A. Yes. New Jersey's Solar Energy Act ("SEA") (P.L. 2012, c. 24) was enacted this past summer with the goal of "rebalancing" the excess supply in the New Jersey solar market. The SEA attempts to accomplish this goal by increasing the solar RPS requirement from its prior level (i.e., the demand for SRECs) in the years between 2013 and 2022 (representing Energy Years 2014 through 2023), with a corresponding reduction in the solar RPS requirement in the years subsequent to Energy Year ("EY") 2023.[19] Overall, the SEA increases the net New Jersey SREC requirement by some 38 percent (3.9 million SRECs) over the next 15 years. A comparison of the old and new solar RPS requirement has been provided in Schedule DED-5.

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[18] *See, for example,* 77 FR 63788-63791, October 17, 2012; Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, From the People's Republic of China: Final Affirmative Countervailing Duty Determination and Final Affirmative Critical Circumstances Determination; U.S. Department of Commerce: International Trade Administration.

[19] *See* P.L. 2012, c. 24 §38 subsection d(3).

Q. HOW DID THE SEA ATTEMPT TO BALANCE RATEPAYER AND SOLAR INDUSTRY INTERESTS IN THIS MARKET RECALIBRATION?

A. The SEA attempts to balance the interests of ratepayers and the solar industry by significantly reducing the SACP price (those subsequent to EY2014). For instance, the Board's prior SACP schedule included an EY2014 SACP price of $625, decreasing moderately to end in EY2026 at an SACP level of $377.[20] The Board's prior SACP schedule would reduce the maximum compliance price in New Jersey solar markets by some 3 percent per year over this thirteen year period.[21] The new SEA sets the new EY2014 SACP level at $339, a full 45.8 percent reduction from the prior year level. SACP prices are then required to decrease at an annual average rate of approximately 2.5 percent until EY2028 where the SACP will be set at $239.[22]

Q. HAVE YOU ESTIMATED THE RATEPAYER IMPACT OF THE CHANGING FINANCIAL LIABILITIES CREATED BY THE NEW SEA?

A. Yes, and these have been provided in Schedule DED-6. While the SEA both accelerates and increases the total net solar RPS requirement, it also provides for a substantial reduction in future SACP levels that, in the past, have influenced market clearing SREC prices, and ultimately set the maximum solar ratepayer financial liability. The calculation of the maximum solar ratepayer financial liability included in the schedule simply assumes the entire solar RPS obligation is paid for at the SACP level and is intended to be a book-end measure of the maximum amount ratepayers could be expected to support under a given SACP schedule and solar RPS requirement. Schedule

[20] Order, BPU Docket EO01190527V, pg. 3.
[21] Order, BPU Docket EO01190527V.
[22] P.L. 2012, c. 24 §38 subsection j.

DED-6 estimates the difference between the maximum ratepayer liability under the old SCAP schedule and solar RPS requirements versus the new SACP price schedule and new solar RPS requirements.[23] Overall, ratepayers should see a $1.1 billion reduction in maximum solar energy financial liabilities by the changes and trade-offs included in the new SEA.

Q. DO THESE CHANGES IN LAW REPRESENT AN EQUAL BALANCING OF INTERESTS BETWEEN RATEPAYERS AND THE SOLAR INDUSTRY?

A. Not entirely, since ratepayers have been called upon, once again, to provide support and back-up for the New Jersey solar industry. The SEA is yet another example, in a series of instances, where the rules and laws governing the solar industry have been changed in order to correct perceived market deficiencies. Further, an important prior Board-approved ratepayer protection, that is, a freeze in any annual increases in the solar RPS if rate impacts exceeded a threshold level, was removed by the SEA. Both concessions (backstopping by ratepayers and the removal of the rate impact cap) need to be considered by the Board in its review of any new solar energy initiatives that would lead to new utility-sponsored solar programs funded directly through rates.

b. <u>Most Forecasts Anticipate an Adequately Supplied SREC Market</u>

Q. WHAT IS THE BASIS FOR THE COMPANY'S SOLAR 4 ALL EXTENSION?

A. The Company bases its proposal on a theory that several factors are aligning that could lead to a sudden contraction in New Jersey solar installations, thereby creating a spike in SREC prices. This theory presumes that:

[23] Assumptions used to make these various estimates are provided in the notes to Schedule DED-6.

- The new SEA will likely lead to an over-stimulation of the demand for SRECs (by accelerating and increasing individual year solar RPS requirements).[24]

- The expiration of federal solar energy Investment Tax Credits ("ITCs") will result in significant contraction of solar installations.[25]

- Existing low SREC prices will create a disincentive in the short-term for new solar energy installations.

Q. IS THE SOLAR ENERGY LAW LIKELY TO LEAD TO A DRAMATIC REDUCTION IN THE EXCESS SREC SUPPLY SITUATION YOU DISCUSSED EARLIER?

A. No. While the SEA will likely assist in moderating the recent free-fall in SREC prices, it will likely not change what some renewable energy market analysts are referring to as the "new normal" in New Jersey solar energy markets. This "new normal" consists of a New Jersey solar market that has relatively steady and strong solar installation rates ("build rates") with lower and more stable SREC prices.

Q. DOES THE OCE ANTICIPATE A DRAMATIC NEAR-TERM DROP-OFF IN NEW JERSEY SOLAR BUILD RATES?

A. No. I have provided historic and forecast solar installation trends on Schedule DED-7 based on information provided by OCE to stakeholders during a December 11, 2012 Renewable Energy ("RE") Meeting. The second page of the analysis shows that OCE forecasts monthly build rates that continue to be significant, at between 18 MW per month to 48 MW per month, over the next five energy years. This represents a strong build rate despite being lower than the recent high of between 48 MW per month to 55 MW per month seen during the December 2011 to June 2012 time period.

[24] Direct Testimony of Joseph A. Forline, Docket Number EO12080726; 6:15 to 7:3.
[25] Direct Testimony of Joseph A. Forline, Docket Number EO12080726; 7: 4-8.

Q. DID THE OCE PROVIDE ANY SREC FORECASTS DURING THE DECEMBER 11, 2012 RE MEETING?

A. Yes. Schedule DED-8 is comprised of two pages that provide the OCE SREC availability forecast to EY2016. The first page of this Schedule provides a chart of the OCE forecast SREC trends while the second page provides this information in tabular form. OCE estimates SREC availability to be above, if not significantly above the new solar RPS requirement defined in the new SEA until EY2016. The one exception to this above-requirement trend occurs in the "low" forecast scenario for EY2016 where SREC availability is anticipated to be slightly below the solar RPS requirement in that year. OCE's median SREC availability forecast, however, ranges from a high of 231 percent of the annual SREC requirement to a low of 134 percent of the annual SREC requirement in EY2016.

Q. ARE THERE ANY INDEPENDENT SOLAR ENERGY FORECASTS THAT CORRBORATE THE CONCLUSIONS REACHED IN YOUR AND THE OCE FORECASTS?

A. Yes. PSE&G provided, in a confidential response to RCR-P-1, several solar energy market analyses, forecasts, and outlooks prepared by Bloomberg New Energy Finance ("BNEF" or "Bloomberg"), a company providing subscription-based analysis, data, and news on clean energy and clean air markets. **Begin Confidential** [redacted]

[26] Company's response to RCR-P-1, Confidential Attachment 15, pg. 1.

[redacted][27] **End Confidential**

Q. DID BLOOMBERG PROVIDE ANY SPECIFIC QUANTITATIVE FORECASTS FOR THIS POTENTIAL Begin Confidential [redacted] End Confidential ?

A. Yes, and those estimates are provided in Schedule DED-9. The Bloomberg analysis is based upon six different development scenarios, each of which are defined in the notes of the Schedule. **Begin Confidential** [redacted] **End Confidential**

Q. IS THIS SOLAR MARKET OUTLOOK UNIQUE TO NEW JERSEY ALONE?

[27] Company's response to RCR-P-1, Confidential Attachment 15, pg. 7.

A. **Begin Confidential** [redacted] **End Confidential** This forecast has been provided in Schedule DED-10.

Q. DO YOU THINK THE EXPIRATION OF THE FEDERAL SOLAR INVESTEMENT TAX CREDIT WILL HAVE A SIGNIFICANT IMPACT ON THE VARIOUS SOLAR BUILD RATES AND SREC FORECASTS YOU DISCUSSED EARLIER?

A. No, at least not given current market conditions. **Begin Confidential** [redacted][28] **End Confidential** Bloomberg's system price and SREC price forecast has been provided in Schedule DED-11.

Q. DO YOU AGREE WITH THE COMPANY'S POSITION THAT LOW SREC PRICES WILL, BY THEMSELVES, LEAD TO A CONTRACTION IN SOLAR INSTALLATIONS?

[28] Company response to RCR-P-1, Confidential Attachment 15, pg. 5.

A. Not necessarily since it fails to recognize and runs contradictory to a certain "feedback loop" that exists in New Jersey solar energy markets where: **Begin Confidential**

[redacted]

[redacted][29] **End Confidential**

c. <u>The SFAE Proposal Will Destabilize SREC Markets</u>

Q. DID BLOOMBERG COMMENT ON THE PSE&G SFAE?

A. **Begin Confidential** [redacted]

[redacted]

[redacted][30] **End Confidential**

[29] *See, for example,* Company response to RCR-P-1, Confidential Attachment 15, pg. 6.
[30] Company response to RCR-P-1, Confidential Attachment 15, pg. 7-8, emphasis added.

Q. DO EITHER OF THE SOLAR MARKET FORECASTS YOU DISCUSSED EARLIER INCLUDE AN ASSUMPTION THAT THE COMPANY'S SFAE PROPOSAL IS APPROVED?

A. It is my understanding that the OCE forecast does not include an assumption that the PSE&G SFAE proposal is approved. It is unclear whether or not the Bloomberg forecast includes that assumption, **Begin Confidential** [redacted] **End Confidential**

Q. HAVE YOU PREPARED ANY ALTERNATIVE OVERSUPPLY FORECASTS THAT ASSUME APPROVAL OF THE PSE&G SFAE PROPOSAL?

A. Yes, and those have been provided in Schedule DED-12 and simply add the proposed SFAE capacity additions to the prior-discussed OCE and Bloomberg forecasts. The schedule shows that if the PSE&G program is approved, it will make an already extensive solar over-supply situation worse and will likely extend market oversupply conditions for a much longer period of time than is currently anticipated. **Begin Confidential** [redacted] **End Confidential** Thus, approval

of the PSE&G SFAE could lead to a situation that ultimately destabilizes, not stabilizes, future solar energy excess supply trends.

d. The SFAE Proposal is Inconsistent with State Energy Policy

Q. DO YOU AGREE WITH COMPANY'S ASSERTIONS THAT ITS PROPOSED SFAE IS CONSISTENT WITH THE NEW JERSEY ENERGY MASTER PLAN ("EMP")?

A. No. The Company, in its direct testimony, argues that the SFAE proposal is consistent with the EMP which identifies "unusable properties," such as landfills and brownfields, and "dual-benefit properties," such as commercial roofs, as target areas of policy importance in promoting New Jersey's renewable energy policy goals with the least possible footprint impacting the State's land use policy objectives.[31] While the Company is correct that the EMP does identify such sites as "...well-suited for the development of large solar generation,"[32] the Company's use of this statement as the justification for its SFAE proposal misses some of the more important, over-arching themes of the Governor's energy policies. More importantly, the EMP explicitly notes:

> The Christie Administration's pursuit of environmental goals does not subordinate other worthwhile resource planning goals centered on reliability and economics. Reducing energy costs, encouraging employment and embracing environmental stewardship are laudable but often competing objectives. New Jersey's policy initiatives are designed to accomplish these goals in a cost-effective manner and consistent with the State Strategic Plan. New Jersey's environmental, economic, and reliability goals require that cost/benefit studies rationally measure total impacts, including direct energy costs, quantifiable environmental benefits, and indirect socio-economic benefits. This will lead to informed

[31] Direct Testimony of Joseph A. Forline, Docket Number EO12080726; 8:7 to 9:3.
[32] 2011 New Jersey Energy Master Plan, December 6, 2011, p. 107. ("Energy Master Plan").

decisions that incorporate good tradeoffs among competing resource planning objectives."[33]

Q. IS THE COMPANY'S SFAE PROPOSAL CONSISTENT WITH THIS OVER-ARCHING THEME OF THE RENEWABLE ENERGY SECTION OF THE EMP?

A. No, since, as I will show later in my testimony, the proposed SFAE does not result in positive net economic benefits; or, in the words of the EMP, the proposed SFAE does not yield results where the benefits are greater than the costs. If approved, the SFAE will likely represent an unnecessary economic burden on New Jersey ratepayers by increasing their rates at a particularly problematic time of economic challenges and post-Sandy storm recovery and rebuilding. While it is true that the EMP recognizes the benefits of solar installations on unusable and dual-usable properties, the EMP does not encourage these types of installation at the expense of all other energy policy considerations, particularly economics. Unfortunately, the Company's SFAE proposal is based entirely upon such a very limited standard of review. The Board should reject the Company's SFAE proposal based upon its inconsistency with the over-arching economic goals of the EMP.

Q. DO YOU AGREE WITH COMPANY'S ASSERTIONS THAT ITS SFAE PROPOSAL IS CONSISTENT WITH THE RECENTLY-ENACTED SEA?

A. No. The Company argues that its SFAE proposal is consistent with the SEA because the proposed program "targets market segments that have been specifically identified in the recently enacted Solar Law."[34] While the SEA, much like the EMP,

[33] Energy Master Plan, p. 75, emphasis added.
[34] Direct Testimony of Joseph A. Forline, Docket Number EO12080726; 2:18-19.

identifies desirable target market segments, it does not do so at the expense of what I interpret to be the legislation's overall objective: creating market stability for New Jersey solar and SREC markets. The Company's proposal to effectively "over-supply" the market with unnecessary utility rate-based solar investments is not consistent with what appears to be the SEA's primary goal.

Q. DOES THE SEA REQUIRE OR DIRECT THE BOARD TO ADOPT RULES EXPANDING UTILITY-BASED SOLAR PROGRAMS TO INCLUDE THE SCOPE OR TYPE OF SOLAR INSTALLATIONS PROPOSED IN THE SFAE?

A. No and, if anything, it could be argued that the SEA was developed in a fashion less supportive of policies promoting utility-owned, ratepayer-supported solar programs, and more towards policies that facilitate market-based long-term contracting and larger non-utility based solar installations. For instance, the SEA allows the Board to continue its policy of supporting programs for long-term SREC contracting provided the long-term contracts are competitively bid.[35] The SEA also directs the Board to establish a procedure for designating solar facilities as "connected to the distribution system," and thus qualified for SRECs, in cases where these facilities are not behind a meter or located on a landfill or brownfield.[36] Additionally, the SEA exempts solar installations on landfills or brownfields from any Board determination regarding their status as being "connected to the distribution system." The SEA also directs the Board to consider the

[35] P.L. 2012, chapter 24 §38 subsection k.
[36] P.L. 2012, chapter 24 §38 subsection q(1).

use of supplemental incentives, in addition to SRECs, to cover the additional costs of construction and operating a solar facility on such land.[37]

Q. DOESN'T THIS LAST PROVISION REGARDING LANDFILL/BROWNFIELD INCENTIVES SUPPORT THE COMPANY'S SFAE PROPOSAL?

A. No, since this later consideration of the SEA, while not explicitly excluding SFAE-like proposals, did not explicitly identify the use of utility-sponsored programs as a means, or even a preferred means, of supporting or promoting these types of landfill solar projects. It would seem logical that if the legislature believed utility rate based programs to be a useful, or even preferable or desirable policy mechanism, the SEA would have explicitly delineated or identified it as an incentive option for the Board to consider. If anything, the Company's proposal puts the proverbial "cart before the horse" by suggesting that the SFAE proposal is the best among a range of options for incenting landfill installations well in advance of the Board even opening up the SEA-required investigation, much less taking evidence, comments from stakeholders, and issuing a proposed rule. If the Board does not reject the Company's proposal as being contrary to the goals of the EMP and SEA from a policy perspective, it should at least reject the proposal as being premature since the SEA-required investigation regarding landfill incentives has not been formally initiated.

Q. DOES THE PROPOSED SFAE MEET THE CRITERIA FOR APPROVAL UNDER THE RGGI LAW?

[37] P.L. 2012, c. §38 subsection t(1).

A. No. A provision of the RGGI Law codified at N.J.S.A. 48:3-98.1(b) provides that, in considering proposals such as the Company's SFAE, the Board may consider factors including the proposed program's potential for job creation, the effect on competition from such proposals, existing market barriers, environmental benefits, and the availability of such proposed programs in the marketplace. The negative impact that the SFAE will have on employment and the environment will be discussed later in my testimony, and the testimony of Ms. Andrea Crane discusses the relationship of the proposed SFAE to other programs in the marketplace. The impact that this program has on competition, however, cannot be considered positive.

Q. WHY WILL THE SFAE NEGATIVELY IMPACT MARKET COMPETITION?

A. The SFAE not only subsidies utility-owned power generation but insulates that utility-owned generation investment decision from market forces. For instance, if future SREC prices fall to levels below what is needed to support the return on and of the Company's investment, ratepayers will be required to make up any of these shortcomings through their electricity rates. While the Company may be deploying its "patient capital" to support this investment, the "patience" embedded in this capital, and the relative cost associated with utilizing that "patience," is clearly supported by ratepayers. The potential backstopping by ratepayers that the Company leverages in offering this program is not afforded to any other non-utility market participant. Such an outcome cannot be consistent, nor supportive, of competitive markets.

V. THE SFAE SUFFERS FROM NUMEROUS PROGRAM DESIGN FLAWS

a. The SFAE Landfill Market Segment is Not Well-Defined

Q. IS THE COMPANY'S LANDFILL MARKET SEGMENT WELL-DEFINED?

A. No. The landfill segment is the largest component of the proposed SFAE. This segment includes, in addition to landfill projects, the installation of solar capacity at brownfields, historic fill areas and underutilized sites owned by governmental entities. However, the Company has not provided any meaningful surveys or market research surrounding this particular market segment, nor any coherent explanation of what projects would qualify. The Company's discussion about this segment, as well as the very limited amount of research that has supported this particular segment, focuses almost entirely on landfills, not landfills, brownfields, and underutilized government buildings, as the filed proposal would suggest.

Q. IS THE GOVERNMENT INSTALLATION COMPONENT OF THIS MARKET SEGEMENT WELL-DEFINED?

A. No, and it is hard to understand what a government installation, like a school, or government office complex, much like the Board's own offices, would have in common with a landfill and why the government installations component has been lumped into a market segment with landfills. The Company's argument for including government installations as a target installation type is based upon its interpretation of the EMP and SEA, and while it is true that both documents provide support for these types of installations, neither document suggests that ratepayer-supported investments should overly (or uneconomically) preference this particular type of solar installation just for the

sake of increasing installations. To make matters even more confusing, the Company's rate impact analysis and revenue requirement analyses label this market segment sector as "Landfills/Brownfields/Greyfields." Nowhere are "greyfields" defined, nor is it clear which projects would be included in the "greyfields" category or if "greyfields" is supposed to be government installations or yet another type of potential solar installation sub-segment. The reference to "greyfields", and what exactly will be included in this sector, adds further ambiguity regarding the types of investments that may be included in the overall landfill market segment.

Q. HAS THE COMPANY EXPLAINED HOW THE VARIOUS INSTALLATION TYPES WITHIN THE LANDFILL SEGMENT WILL BE TARGETED, OR HOW LARGE EACH TYPE OF INSTALLATION WILL BE RELATIVE TO THE OVERALL 90 MW ALLOCATED FOR THIS MARKET SEGMENT?

A. No. The Company has not provided information regarding the likely allocation of capacity or costs within the landfill segment of its SFAE proposal. In fact, a close examination of the limited cost information provided by the Company in discovery would appear to suggest that overall investment costs for this category are based upon landfill installations alone. I will discuss this issue at a later point in this section of my direct testimony.

b. <u>The Proposed SFAE Market Segments Sizes Lack Analytic Support</u>

Q. HAS THE COMPANY PROVIDED ANY MEANINGFUL SUPPORT FOR THE SEGMENT SIZES INCLUDED IN ITS SFAE PROPOSAL?

A. No. The Company cites the EMP as the basis for the market segments it has selected, but has failed to provide any quantitative market analysis as the basis for the capacity allocation across each of its proposed market segments.[38] This omission creates two regulatory policy concerns. The first concern is associated with what appears to be a relatively arbitrary assignment of capacity to very expensive market segments. Over 85 percent of the total SFAE capacity is assigned to the "landfills and brownfields," "parking lots," and "pilots and demonstrations" market segments, all of which have average installed unit costs in excess of $5,000/kW. The allocation of such a large amount of project capacity into these exceptionally costly installation categories should include some type of analysis that goes beyond a passing reference to the EMP or the SEA or a tally of existing potential sites and acreage. The second concern is that the failure to provide a complete roadmap linking market segment installation opportunities to goals and to costs underscores what appears to simply be an arbitrary assignment of capacity to a wish list of market segments. The lack of support and arbitrary nature of these capacity assignments serves as further support for rejecting the Company's SFAE proposal.

Q. WHAT SUPPORT DID THE COMPANY PROVIDE FOR ITS LANDFILL SEGMENT MARKET ANALYSIS?

A. It appears that the Company has not performed a detailed market analysis to support the parameters for its proposed landfill segment. The Company did, however, provide a survey of the New Jersey Department of Environmental Protection ("DEP") databases to ascertain the number of New Jersey landfills in its service territory as well as

[38] Company responses to RCR-P-16(a) and RCR-P-17.

those outside of its service territory.[39] The survey estimated the total eligible landfill solar installations based upon landfill acreage at "properly closed" and "non-properly closed" in-state landfills. The Company's proposed market segment size of 90 MW is a very large share of the total "potential MWs" at landfills within the Company's service territory and others outside of this area. The Company's 90 MW target is considerably higher than the 40 MW of potential capacity at "properly closed landfills" in its own service territory, and represents close to the entire share of the in-state total potential capacity at properly closed landfills (i.e., 103 MW). Furthermore, no engineering analysis was provided to support such a substantial number of New Jersey landfills that can support solar installations.

Q. DID THE COMPANY SURVEY THE BROWNFIELD SITES?

A. Yes, the Company provided a similar survey for brownfield sites included in the DEP database. The Company provided a similar table for brownfields and estimated what it defines as "potential MW" from the total acreage reported in the database. This survey, however, overstates the potential MW capacity from these locations by over 34 percent (470.5 MW) since there are no sites under roughly 30 acres that can support the typical project sizes envisioned by the Company for this market segment.[40]

Q. DID THE COMPANY PROVIDE A COMPARABLE SURVEY FOR THE GOVERNMENT INSTALLATION COMPONENT OF THE LANDFILL SEGMENT?

A. No. The Company has not provided any information on how government solar installations fit into this overall market segment nor has it identified how large it

[39] Company response to RCR-A-24.
[40] *Ibid.*

anticipates these particular types of installations to be relative to the overall 90 MW assigned to the total landfill segment.[41]

c. The SFAE Market Segment Costs are Excessive

Q. ARE THE TOTAL INSTALLED UNIT COSTS FOR THIS PROGRAM REASONABLE?

A. No. The total installed unit costs for the capital investments associated with the SFAE proposal are very large, averaging over $5,000/kW for the overall program. This estimated unit cost is even more troubling considering the fact that the typical project in each segment is anticipated to be very large, comprised of several MWs of capacity each, and fails to recognize any scale economies. Three of the four market segments have proposed installed unit costs well in excess of $5,000/kW including the landfill sector ($5,266/kW), the parking lot sector ($5,320/kW), and the pilot and demonstration sector ($8,630/kW). The warehouse roofs segment is the only component of the overall program proposal that can be remotely considered economic in today's solar market at $3,700/kW. These per unit costs per segment are provided in Schedule DED-13.

Q. BUT WOULDN'T YOU EXPECT SOME OF THESE SEGMENTS TO HAVE HIGH COSTS GIVEN THEIR INSTALLATIONS DIFFICULTIES?

A. Possibly, but the order of magnitude associated with some of the typical installation costs per segment that have been provided by the Company as support for the program are highly questionable, particularly given the lack of market analysis that appears to have gone into their preparation. The Company itself notes that it has conducted no market analyses, survey work, or other analyses to support its claim that

[41] Company responses to RCR-P-16(a), and RCR-P-17.

"solar installations at landfills, brownfields, and under-utilized government facilities have higher total or higher per unit costs (installed cost per kW), have longer development timelines, have more complex permitting requirements, have greater environmental risks, or have greater financial risks."[42]

Q. DID THE COMPANY PROVIDE ANY INSTALLATION COST INFORMATION TO SUPPORT ITS PORPOSAL?

A. Yes. The Company provided a capital expenditure profile for its landfill, warehouse, parking lot, and pilot/demonstration market segments. A comparison of these costs has been provided in Schedule DED-13. The most striking element of these estimates is the large share of unknown, undefined and/or contingency costs (hereafter referred to as "unknown costs") built into each estimate. For instance, unknown costs account for 25.3 percent of the total typical landfill segment costs of $5,266/kW.

Q. ARE THE SFAE PROPOSED LANDFILL SEGMENT COSTS CONSISTENT WITH COST EVIDENCE FROM THE COMPANY'S PRIOR LANDFILL INSTALLATION EXPERIENCE?

A. No. To date, the Company has participated in five different New Jersey landfill solar installation projects. The summary statistics for each of these projects has been provided in Schedule DED-14. Each of these projects have been developed during the past three years, some of which were likely to have started during the period prior to the more recent significant decrease in solar panel prices. These projects vary in size from one to three MWs in size. The average installed cost across all of these landfill projects is $4,492/kW, an amount some 17 percent lower than what has been proposed in this

[42] Company response to RCR-A-16(b).

filing, despite the relatively significant decrease in solar panel prices over the past 12 to 24 months.

Q. ARE THE COMPANY'S PROJECTED SFAE LANDFILL COST ESTIMATES GREATER THAN THOSE FOR THE WAREHOUSE ROOF SEGMENT OF THE PROPOSED PROGRAM?

A. Yes. The installed unit cost for the warehouse segment is $3,700/kW, compared to the landfill segment estimated to be $5,266/kW. The Company acknowledges that its development costs "will be somewhat more expensive for the landfill segment compared to the warehouse segment" – with "somewhat" being an important understatement since there is a 42 percent cost differential between the two segments. Further, as noted earlier, the "landfill segment" is proposed as some unknown and undefined combination of landfills, brownfields, and government installations. The Company has not separated its landfill segment capital expenditure profile into the three different installation types, raising further questions and concerns about the costliness of this particular market segment. One of two possible outcomes has to occur in order to arrive at the specific amount for the segment's estimated average cost ($5,266/kW): (1) the unit cost of the landfills projects has to be well in excess of $5,266/kW in order to offset what are likely the considerably lower cost per kW for the government facilities installations; or (2) the underlying cost support for this sector is based upon landfills only and the company has overstated (or padded) its capital expenditure estimates for this particular market segment. The later rationale may be the more likely of the two potential outcomes given the Company's request that it be able to develop additional projects, without prior Board

approval, should the Company find later that it has additional unspent capital relative to what was authorized in the Order approving the SFAE.

Q. HAS THE COMPANY RECOGNIZED THE VERY EXPENSIVE NATURE OF THE LANDFILLS SEGMENT OF ITS PROPOSAL?

A. Yes, the Company recognizes that there are other proposed market segments even within its own SFAE proposal that have lower costs, but claims that the SFAE proposal overweighting installations to the landfill segment is the most consistent with the EMP and SEA.[43] However, as I noted earlier, there is nothing in either the EMP or the SEA that mandates utility-funded landfill installations, nor is there anything in either document that suggests cost considerations are, or should be, of secondary concern relative to these types of installations.

d. <u>The SFAE Market Segment Project Sizes are Unrealistic</u>

Q. HAS THE COMPANY PROVIDED ANY SUPPORT FOR THE NUMBER OF PROJECTS OR TYPICAL PROJECT SIZES IT PROPOSED FOR ITS SFAE MARKET SEGMENTS?

A. No. The Company has provided no market analyses or any other type of information to support its average number of projects or average project sizes for each SFAE segment. The average project size for each segment is very large, and exceptionally large relative to the Company's prior experience in many categories. For instance, the Company proposes to develop between 10 and 20 projects in its landfill segment. This means that average project sizes will range from 4.5 MW to as large as 9.0 MW. Yet, Schedule DED-14, which was discussed earlier and provides the basic

[43] Company response to RCR-A-25.

statistics for the Company's prior landfill projects, shows installation sizes only ranging from 1 MW to 3 MW, considerably lower than those proposed in the landfill market segment. The Company also projects its warehouse segment average project sizes to range from 2.0 MW to 3.3 MW, its parking lot project sized to range from 1.6 MW to 5.0 MW and the pilot programs to range from 100 kW to 200 kW.[44]

Q. ARE THERE ANY OTHER ISSUES ASSOCIATED WITH THE COMPANY'S PROPOSED NUMBER OF PROJECTS AND AVERAGE PROJECT SIZES?

A. Yes, there is a considerably large range in PSE&G's estimates of both the number of projects and the average project sizes per SFAE segment. The number of projects, and average project sizes vary by as much as 100 percent for the landfill segment, 66 percent for the warehouse segment, 200 percent for the parking lot segment, and 500 percent for the pilot and demonstrations segment. This large range of variation, coupled with the lack of any meaningful market analysis, suggest a very low degree of confidence in the accuracy of the number of projects and average project sizes for each SFAE market segment.

VI. THE SFAE WILL RESULT IN NEGATIVE NET ECONOMIC BENEFITS

a. The Company Uses an Incorrect Economic Impact Methodology

Q. HAS THE COMPANY ESTIMATED THE ECONOMIC IMPACTS THAT IT BELIEVES WILL ARISE FROM ITS PROPOSED SFAE?

A. Yes. The Company has provided an estimate of the economic impacts that it believes will result from the implementation of its proposed SFAE. However, these

[44] Company response to RCR-P-25.

economic impacts only estimate the potential benefits associated with the SFAE's proposed solar installations. This analysis does not represent a more complete "net economic benefits" analysis that compares overall project costs, to project revenues, and thus, is somewhat limiting in the conclusions it reaches.

Q. HOW DOES THE COMPANY ESTIMATE ITS SFAE ECONOMIC IMPACTS?

A. The Company estimates the economic impacts associated with its SFAE proposal by extrapolating a number of generalized parameters included in the EMP. These generalized parameters are the multipliers inherent in the EMP's economic impact analysis that was conducted by Rutgers' Center for Energy, Economic & Environmental Policy ("CEEEP") using the R/Econ input-output model[45] originally developed by the Center for Urban Policy Research ("CUPR") at Rutgers in 1992.[46]

Q. ARE THERE ANY DEFICIENCIES IN THE COMPANY'S ECONOMIC IMPACT ANALYSIS?

A. Yes, the Company's analysis suffers from at least three particular deficiencies. First, the Company's economic impact estimates do not control for the capital expenditure "leakages" associated with out-of-state purchases. Second, the Company's economic impact estimates fail to consider the negative economic impacts associated with the rate impacts resulting from the proposed SFAE if implemented. Third, the Company's rate impact analysis is significantly underestimated since it "over-credits"

[45] An economic input-output model is a model which utilizes a series of economic multipliers to estimate the effect of a given expenditure (an input) on total economic output of a given region.

[46] *See* http://policy.rutgers.edu/cupr/recon/.

offsets to program costs using unrealistic or dated assumptions on forecast SREC, energy, and capacity prices.

b. The Company's Economic Impact Methods Do Not Account for Leakages

Q. LET'S TALK ABOUT THE FIRST DEFICIENCY YOU DISCUSSED EARLIER: CAN YOU EXPLAIN WHAT YOU MEAN BY AN ECONOMIC "LEAKAGE?"

A. Yes. An economic leakage occurs when a portion of some overall economic "shock" (which can be an expenditure or cost) is made outside of the study area under investigation. When the study area of interest is a State, a leakage simply represents the out-of-state share of total expenditures. So, if a particular project is anticipated to make 30 percent of its expenditures out of state, and total capital expenditures for the project is assumed to be $100 million, then $30 million can be thought of as a "leakage." In order to estimate economic impacts, this $30 million is typically "backed-out" of the economic impact analysis since it represents purchases (and theoretically benefits or costs) that occur out-of-state as opposed to in-state. Failure to properly account for these leakages can lead to a bias in economic impact modeling results.

Q. DID THE COMPANY'S ECONOMIC IMPACT ESTIMATES INCLUDE A LEAKAGE ADJUSTMENT?

A. No. The Company's economic benefit analysis assumes that 100 percent of all of the SFAE capital expenditures will occur in-state. This is likely to not be the case, and such an assumption is inconsistent with the share of out-of-state expenditures associated

with the Company's original SFA program where 37.7 percent of all contracts were signed with out-of-state vendors.[47]

Q. DOES THIS MEAN THAT THE COMPANY'S ESTIMATED ECONOMIC IMPACTS ARE OVERSTATED?

A. Yes. The economic impacts (benefits) estimated in the Company's SFAE filing are overestimated by over 37 percent since, based upon recent past experience, it is likely that some 37 percent of all SFAE expenditures will be associated with out-of-state solar developers or vendors. Correcting for this leakage, the estimated increase in gross state product using the Company's methodology decreases from $147 million to $93 million. Further, the Company's estimated employment impacts need to be adjusted downward from 885 job-years to 558 job-years, and from $94 million to $59 million in wage income.[48] These revised results are related to the Company's proposed SFAE investments only and do not net these investments against any negative rate impacts associated with the program.

Q. HAVE YOU COMPARED THE COMPANY'S METHODLOGY TO ANY ALTERNATIVE MODELS THAT ESTIMATE THE POSITIVE CONSTRUCTION-RELATED BENEFTS FROM THE PROPOSED SFAE?

A. Yes, and those estimates have been provided in Schedule DED-15. My alternative economic impacts estimates are developed using a 37.7 leakage rate and take advantage of the Jobs and Economic Development Impact ("JEDI") solar PV economic impact models, rather than the drivers used by the Company that were originally generated by CEEEP. JEDI is a state-specific economic impact model developed by the

[47] Company response to RCR-P-12.
[48] Company response to RCR-P-21.

National Renewable Energy Laboratories ("NREL") to specifically estimate the economic impacts associated with renewable energy investments.[49] NREL maintains state-specific "modules" for each type of major renewable investment including solar, onshore wind, biomass, and geothermal. JEDI uses Implan[50] as its base modeling platform, and "re-compiles" various Implan sectors in order to develop a unique customized model for each renewable investment type. While the R/Econ model developed by Rutgers has the advantage of being New Jersey-specific, it is a bit of a "black-box" approach to estimating economic impacts for any party other than Rutgers, who runs the model on behalf of others, but does not lease, license, or distribute its model for third-party use. The JEDI and Implan models can be useful alternatives since: (1) they are both credible and well-recognized on a national basis; (2) yield results similar to R/Econ; (3) are also New Jersey-specific; and (4) can be utilized or purchased for direct use by third parties in order to do independent analyses.

c. The Company's Economic Impact Methods Do Not Appropriately Account for Rate Impacts

Q. LET'S TURN TO THE SECOND ISSUE YOU RAISED EARLIER: DO THE COMPANY'S ECONOMIC IMPACT ESTIMATES APPROPRIATELY ACCOUNT FOR THE NEGATIVE ECONOMIC IMPACTS CREATED BY THE RATE INCREASE NEEDED TO FUND THE PROGRAM?

A. No. The Company's analysis fails to take into account the fact that the rate increases needed to fund the SFAE investments will lead to a certain amount of negative economic impacts.

[49] http://www.nrel.gov/analysis/jedi/about_jedi.html
[50] http://www.implan.com

Q. CAN YOU EXPLAIN HOW A RATE INCREASE CAN LEAD TO A NEGATIVE ECONOMIC IMPACT?

A. Yes. Rate increases reduce household disposable income and increase costs to business and industries. This rate increase represents a negative impact on a regional economy since it takes income and increases costs for several classes of market participants without any corresponding direct economic offset (or transfer). A reduction in household income, or an increase in business costs, reduces the amount of money spent on goods and services, which in turn, leads to "ripple effects" (or multiplier effects) in a regional economy. A schematic of how this impact works, relative to the construction-related benefits of the program, are provided in Schedule DED-16.

Q. WILL THE COMPANY'S SFAE PROPOSAL RESULT IN NET POSITIVE ECONOMIC BENEFITS IF THE NEGATIVE RATE IMPACTS OF ITS PROPOSAL ARE INCLUDED?

A. No. A simple comparison of the negative impacts associated with the Company's estimated rate increase, versus the positive impacts from its SFAE construction and operations, shows that the costs of the program (rate impacts) exceed its benefits (construction). The results of this analysis have been provided in Schedule DED-17 and show that the Company's SFAE proposal is likely to lead to a net contraction of New Jersey economic output of some $56.7 million NPV and a reduction of New Jersey employment by some 3,561 job-years. This analysis likely underestimates the true negative scope of the potential net economic benefits since the Company's estimated rate impact assumes over-generous revenue credits that understate the true rate impact

associated with the Company's SFAE proposal. I will discuss this and provide an alternative rate impact analysis in the following section of my testimony.

Q. CAN YOU PUT SOME PERSPECTIVE ON THESE NEGATIVE NET EMPLOYMENT IMPACTS?

A. Yes, the negative net employment impacts associated with the Company's SFAE proposal appear large when reported in the absolute, and while important, need to be put into some perspective. First, these employment estimates are provided on a cumulative basis for the a 24 year period associated with the Company's own pro forma and rate impact analyses. So, these impacts are not immediate, but spread out over a longer period of time. Second, the cumulative employment impacts are represented in terms of "job-years" which is simply the number of jobs times the number of impact years in the study. So, a 100 job-year impact could be interpreted as 100 jobs for one year, or a one job impact over 100 years. The use of job-years is an attempt to put some temporal perspective on the overall employment impact, and a simple estimate of the average annual employment impact can be developed using these impacts by dividing total job-year impacts by the total number of years (in this case 24) to get an annual average employment impact. While the specific impact in any given year may differ from this number, it can be used as a general approximation of the impact in any given year, on average, across the study period under investigation. Lastly, while a negative impact of some 3,561 jobs-years seems large, the New Jersey economy currently employs over 4.9

million workers.[51] This estimated impact, even on a cumulative basis, is less than 0.1 percent of current employment of the entire State.

d. The Company's Rate Impacts are Understated

Q. LET'S TURN TO THE LAST ISSUE YOU RAISED EARLIER REGARDING THE COMPANY'S ECONOMIC IMPACT ESTIMATES. DID THE COMPANY UNDER-ESTIMATE THE RATE IMPACTS ASSOCIATED WITH ITS PROPOSED SFAE?

A. Yes. The Company's rate impact analysis includes a number of revenue credits that are applied against program costs that tend to lower the overall cost impact to ratepayers. These revenue credits include those associated with SREC auction revenues, energy revenue credits, and capacity revenue credits. These three revenue credits occur close to annually and while the Company is correct in the use of these credits as an offset to program costs, the forecasts utilized by the Company for these revenue credits are significantly larger than anticipated market conditions suggest. There is a direct inverse relationship between the size of these credits and the resulting rate impact estimates: the larger the credit the smaller the rate impact, and vice versa. Overall, the Company estimates total revenue credits of some $227.3 million (NPV basis) that are comprised of some $141.7 million in SREC revenue credits, $72.6 million in energy revenue credits, and $13 million in capacity revenue credits. These credits are presented in Schedule DED-18.

[51] The Implan model has estimates of economic variables such as gross state product, total personal income, total employment, population and number of households in each state. This estimate of the total number of persons employed comes from these estimates provided within Implan.

Q. CAN YOU EXPLAIN HOW THE SREC REVENUE CREDITS HAVE BEEN OVERSTATED?

A. Yes. The solar projects developed and owned by the Company under its proposed SFAE will generate a stream of SRECs in any given year in which those installations are operable. The Company proposes to auction those new SRECs to the market along with other SRECs generated from its SFA program, its SLII program and any approved extension of the SLII program. The Company's rate impact analysis assumes a fixed SREC price of $200 per SREC. This assumed SREC price is multiplied by the SFAE forecast SRECs in order to develop a total annual SREC-specific revenue credit. The SREC price, however, is fixed at $200 for each in every year between 2014 and 2035 in the Company's analysis. This $200/SREC price is unrealistically high and inconsistent with recent SREC prices attained in the Company's currently ongoing SREC auctions, as well as the forecast SREC prices provided by Bloomberg that I discussed earlier.

Q. CAN YOU COMPARE THIS $200 PER SREC ASSUMPTION TO THE RECENT SREC PRICING TRENDS IN THE COMPANY'S SREC AUCTION?

A. Yes, and that comparison has been provided in Schedule DED-19. SREC prices bid into the Company's early SREC auctions were relatively high and, at the time, very close to SACP values. For instance, EY2011 auctions saw prices in excess of $450/SREC with two instances in which SREC prices were as high as $669/SREC (some 99 percent of the then-prevailing SACP). SREC prices began falling in EY2012 auctions with SREC prices ranging from a high of $227/SREC to a low of $70/SREC. In fact, the last two reported auctions have seen prices at $70/SREC, an amount comparable to the **Begin Confidential** [redacted] **End Confidential** price reported by Bloomberg, yet one

that is far lower than the $200 per SREC assumed by the Company in its rate impact analysis.

Q. DO YOU HAVE ANY RECOMMENDATIONS ON THE APPROPRIATE SREC PRICE TO USE FOR RATE IMPACT ESTIMATION PURPOSES IN THIS PROCEEDING?

A. Yes. I recommend that the Company use the forecasted SREC prices developed by Bloomberg that was discussed earlier in my testimony and provided in Schedule DED-11. This forecast, however, ends in 2020 while the Company's rate impact analysis ends in 2035. I recommend that these outlying years (2021 to 2035) be estimated by taking the last known SREC price and reducing that each year by 2.5 percent until the year 2035. This annual SREC price reduction rate is consistent with the OCE SACP recommendation offered to stakeholders back in 2007 prior to the passage of the SEA.[52] My annual recommended SREC prices have been provided in Schedule DED-20. Schedule DED-23 presents my re-estimation of the Company's SREC revenue credits which decrease by some **Begin Confidential** [redacted] **End Confidential.**

Q. CAN YOU EXPLAIN WHY THE COMPANY'S ENERGY SALES REVENUE CREDITS ARE OVERSTATED?

A. Yes. As noted earlier, the EDECA restricts electric utility participation in generation markets. Solar installations, however, generate electricity despite this restriction. In the past SFA program, the Company imputed the dollar value of the energy component of this generation by at a rate consistent with the energy prices posted

[52] Order, BPU Docket No. EO06100744, pg. 42.

in the applicable PJM energy market. The Company proposes to use this same imputation method for the proposed SFAE, clarifying in the current filing that the PJM day-ahead energy market will be utilized for its calculations. Since these future prices are currently unknown, the Company uses a set of forecast energy prices developed by CEEEP for avoided cost assumptions associated with energy efficiency program evaluation.[53] This energy price forecast was developed for a draft version of CEEEP's report in June 2012, and is stale relative to current market projections, even when compared to CEEEP's updated energy price forecast included in the group's final report released in October 2012. For instance, CEEEP's more recent energy price forecast prepared in October 2012 for New Jersey anticipates prices on average some 15.5 percent lower than the institute's June 2012 forecast. I recommend that the Board use this updated forecast for purposes of evaluating the rate impacts for the proposed SFAE. A comparison of CEEEP's June 2012 energy price forecast, and its revised October 2012 forecast is provided in Schedule DED-21. Schedule DED-23 presents my recommendation to reduce the Company's proposed energy revenue credits by **Begin Confidential** [redacted] **End Confidential.**

Q. PLEASE EXPLAIN WHY THE COMPANY'S CAPACITY SALES REVENUE CREDITS ARE OVERSTATED.

A. The Company also proposes to credit ratepayers for the capacity value associated with its proposed SFAE investments. This credit is comparable in nature to the type of credit that exists in the Company's original SFA program; however, the Company

[53] *See* Company response to RCR-A-1, WP-JAF-S4A-1; Company work papers reference a document entitled: "Rutgers CEEEP – Draft Energy Efficiency Cost-Benefit Analysis Avoided Cost Assumptions – June 2012". The final version of this analysis, dated October 2012, is available from CEEEP's website: http://policy rutgers.edu/ceeep/publications/.

valuated these credits using the same dated CEEEP forecast for avoided capacity developed during June 2012. CEEEP has since updated this forecast for the organization final report released in October 2012, and now anticipates capacity prices some 20.5 percent lower than previously forecasted. I recommend that the Board use CEEEP's October 2012 revised capacity prices for purposes of evaluating the SFAE rate impacts. This revised forecast has been provided in Schedule DED-22. My recommendations reduce the Company's capacity revenue credit by $2.84 million (NPV) or 21.9 percent. A comparison of all of the revenue credits valuations I used in my analysis, and the Company's assumptions, is presented in Schedule DED-23.

Q. DO YOUR RECOMMENDED REVENUE CREDITS HAVE A MATERIAL IMPACT ON THE COMPANY'S RATE IMPACT ANALYSIS?

A. Yes, and Schedule DED-24 provides a comparison of the different rate impact estimates. I estimate that the direct rate impact associated with the Company's SFAE will be some **Begin Confidential** [redacted] **End Confidential** higher than what was implied by the Company in its SFAE filing.

Q. DID YOU PERFORM ANY SENSITIVITIES ON THIS RATE IMPACT?

A. Yes, and those are provided on page 2 of Schedule DED-24. This analysis examines the rate impact of the Company's proposal under different SREC price assumptions starting from $0 to $200 per SREC. The sensitivity analysis shows a rate impact of some $419.47 million (NPV) if the SREC credit is priced at $0 per SREC; a rate impact of $383.91 million NPV if the SREC credit is priced at $50 per SREC; a rate impact of $348.35 million NPV if the SREC credit is priced at $100 per SREC; a rate

impact of $312.78 million NPV if the SREC credit is priced at $150 per SREC; and a rate impact of $277.22 million NPV if the SREC credit is priced at $200 per SREC.

e. **The Company's Environmental Benefits are Overstated and Incorrect**

Q. CAN YOU EXPLAIN HOW THE COMPANY ESTIMATED THE ENVIRONMENTAL BENEFITS ASSOCIATED WITH ITS SFAE PROPOSAL?

A. Yes. The Company estimates that its SFAE program will reduce carbon emissions by some 103,143 metric tons per year, SO2 emissions by 441 metric tons per year, and NOX emissions by some 190 metric tons per year.[54] The Company estimates these emission reductions as those associated with the traditional fossil generation avoided due to the SFAE solar installations.

Q. DO THESE ESTIMATES REPRESENT LIKELY NEW INCREMENTAL AIR EMISSION IMPROVEMENTS?

A. Not necessarily. The only way that these air emission reductions could, or should be counted as creating positive net environmental benefits, is if the SFAE leads to new, unanticipated solar capacity increases. If the Company suggests that its program will lead to new, net incremental capacity, then it supports the opinion I expressed earlier that the SFAE is likely to be destabilizing because it adds solar capacity at a time when such additions are likely not needed. Otherwise, if the Company's SFAE program is "capacity neutral," meaning that it will not add to the overall anticipated solar generation already prescribed by the SEA's new solar RPS requirements, then there will be no new net emission reductions since the Company's program simply represents a substitution of its

[54] Company response to RCR-P-23.

SFAE generation with that already prescribed by the SEA. The Company should not get any environmental credit for a reduction in emissions already embedded in the SFAE.

f. The SFAE Will Result in Negative Net Economic Benefits

Q. HOW DO THE CHANGES YOU DISCUSSED EARLIER INFLUENCE THE POTENTIAL NET ECONOMIC BENEFITS OF THE SFAE PROPOSAL?

A. The use of my revised rate impact analysis, alone with the leakage adjustment I discussed earlier, makes the Company's SFAE considerably more uneconomic. If my revised rate impact analysis is compared to the Company's SFAE investments, adjusted for the appropriate leakages, then the program is likely to result in a relatively large negative economic benefit. Total net New Jersey economic output is estimated to be reduced by $185.8 million NPV, total employment will be reduced by 7,222 job-years, and total New Jersey labor income will be reduced by $22.5 million. The full results of this analysis have been provided in Schedules DED-24 (rate impact analysis) and DED-25 (net economic benefits analysis).

VII. CONCLUSIONS AND RECOMMENDATIONS

Q. WOULD YOU PLEASE SUMMARIZE YOUR RECOMMENDATIONS?

A. I recommend that the Board reject the Company's SFAE proposal since:

1) The SFAE is not needed to meet New Jersey's solar energy goals and, if approved, could be destabilizing to New Jersey solar markets. The New Jersey solar market is already over-supplied, and anticipated to be over-supplied, or at least adequately-supplied, for many years into the future.

2) The SFAE suffers from a number of program design flaws since it is based upon market segments that are: (a) poorly and/or ambiguously defined; (b)

lacking in any detailed analytic support; (c) comprised of exceptionally high costs; and (d) unrealistic typical program sizes.

3) The SFAE will result in unreasonably high rate impacts and negative net economic benefits. If approved, the SFAE will likely reduce New Jersey economic output by some $185.8 million and employment by some 7,222 job-years.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY FILED ON JANUARY 18, 2013?

A. Yes it does. However, I reserve right to supplement my testimony if any updated or additional information becomes available during the course of this proceeding.

ATTACHMENT A
SUMMARY OF QUALIFICATIONS

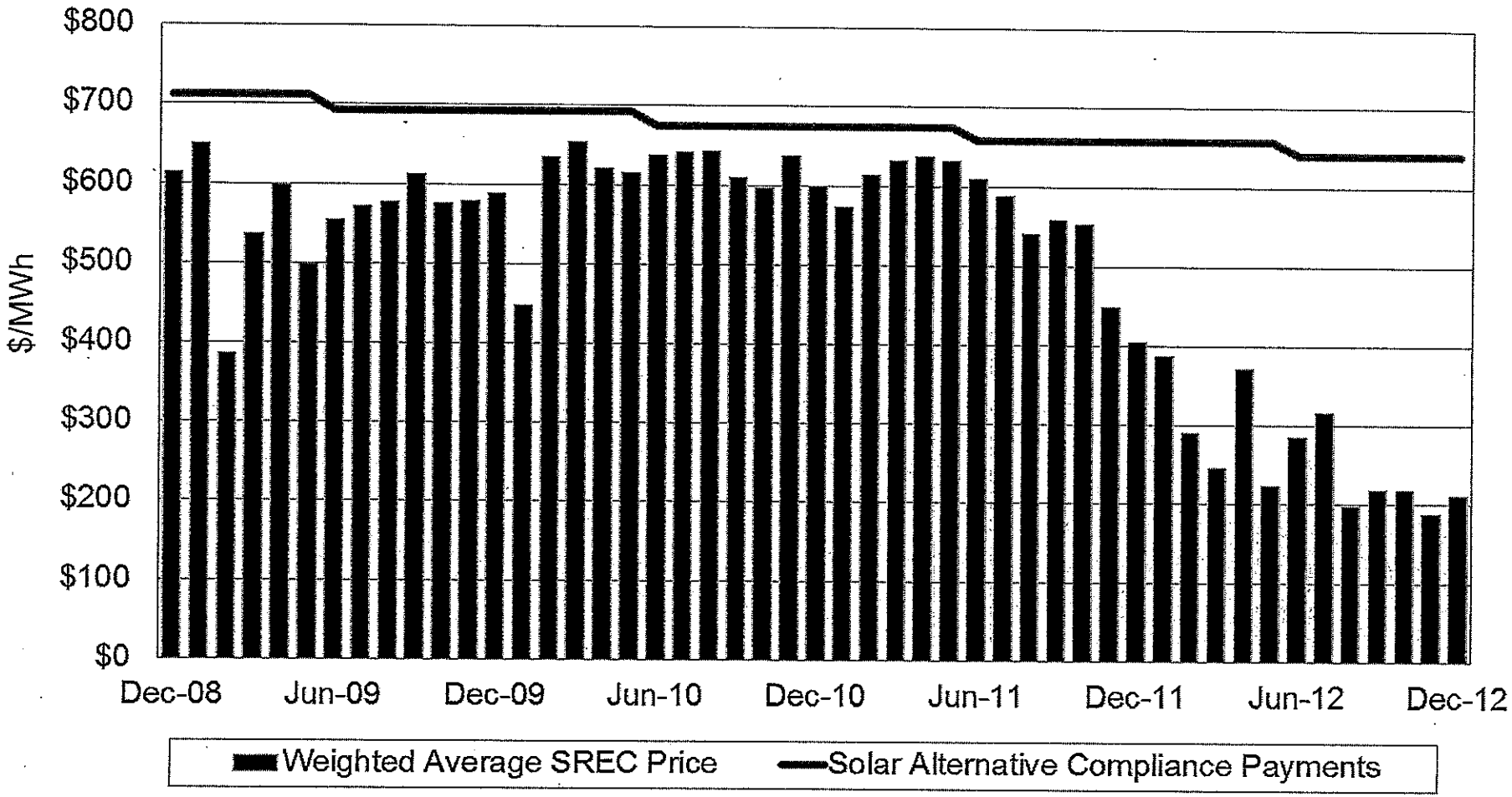
ATTACHMENT B
SCHEDULES
PUBLIC VERSION

Comparison of Historical SREC Availability and New Jersey Solar RPS

	Solar RPS Requirement	SRECs Retired	Surplus/ (Shortage)
	---------- (MWh) ----------		
EY 2008	65,384	49,617	(15,767)
EY 2009	130,266	75,532	(54,734)
EY 2010	171,095	123,717	(47,378)
EY 2011	306,000	285,235	(20,765)
EY 2012	442,000	710,857	268,857
EY 2013 (YTD)	596,000	518,825	276,678

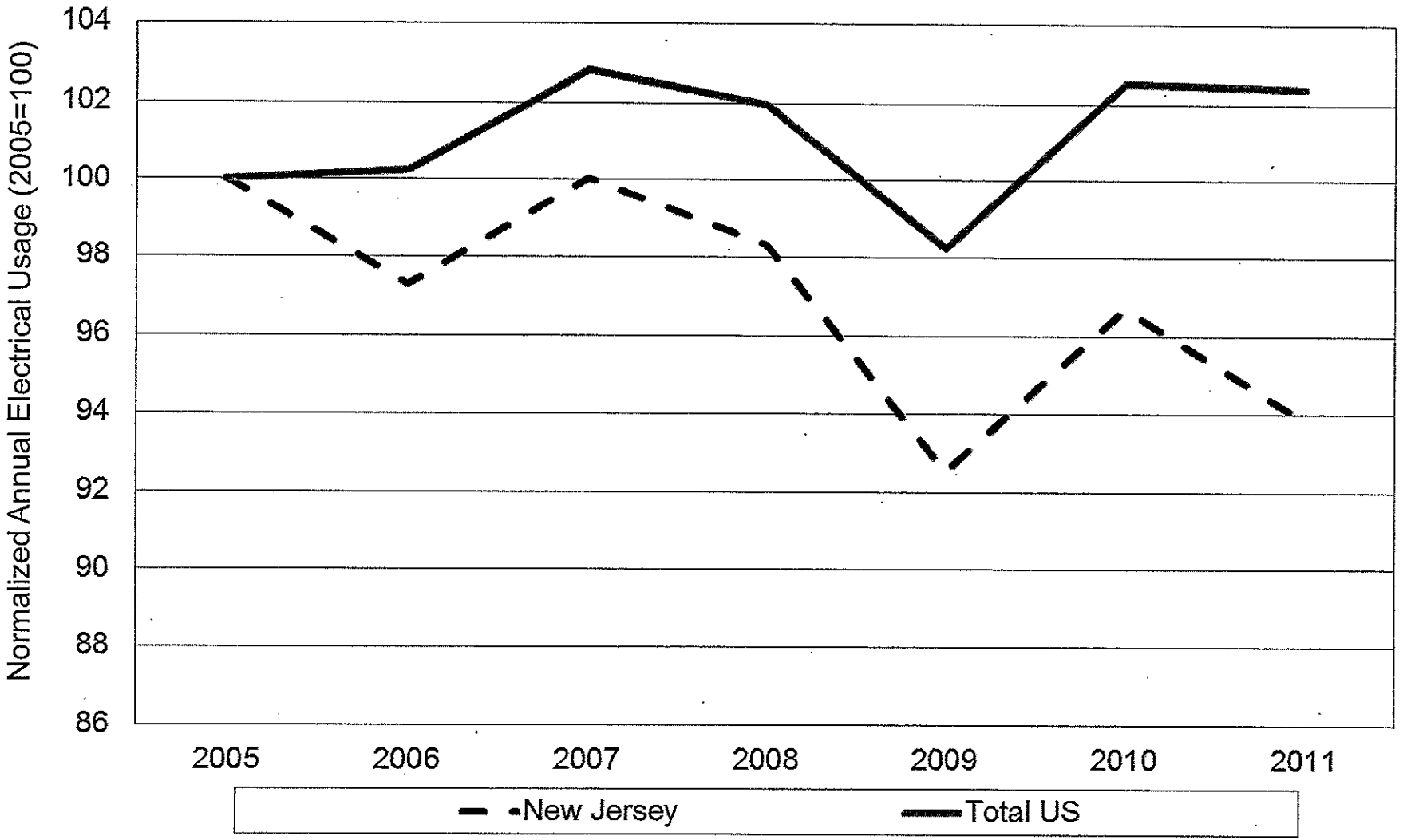
Note:
Data for 2008 through 2010 was provided by OCE in its "Updated RPS Compliance History" spreadsheet provided to the Renewable Energy Committee on January 11, 2011.
EY 2013 retired SREC value is as of January 4, 2013.
EY 2013 surplus is calculated as the RPS requirement subtracted from the year-to-date daily average SRECs retired multiplied by 365.
Source: Office of Clean Energy; PJM Generation Attribute Tracking System (GATS).

Comparison of Historical SREC Prices to SACPs



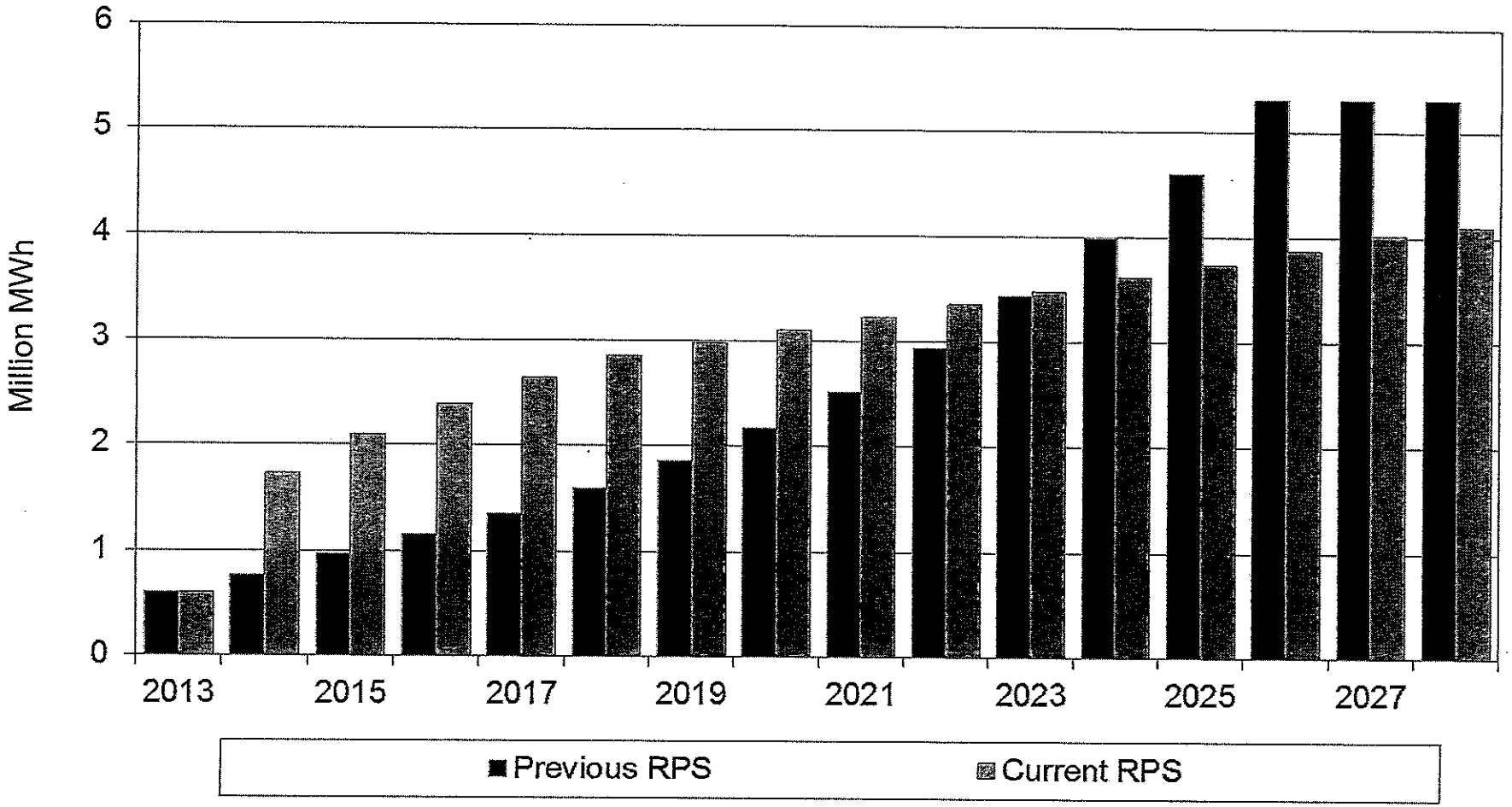
Source: PJM Generation Attribute Tracking System (GATS); New Jersey Office of Clean Energy; and Decision, BPU Docket No. EO06100744.

New Jersey and US Annual Electrical Usage (2005-2011)



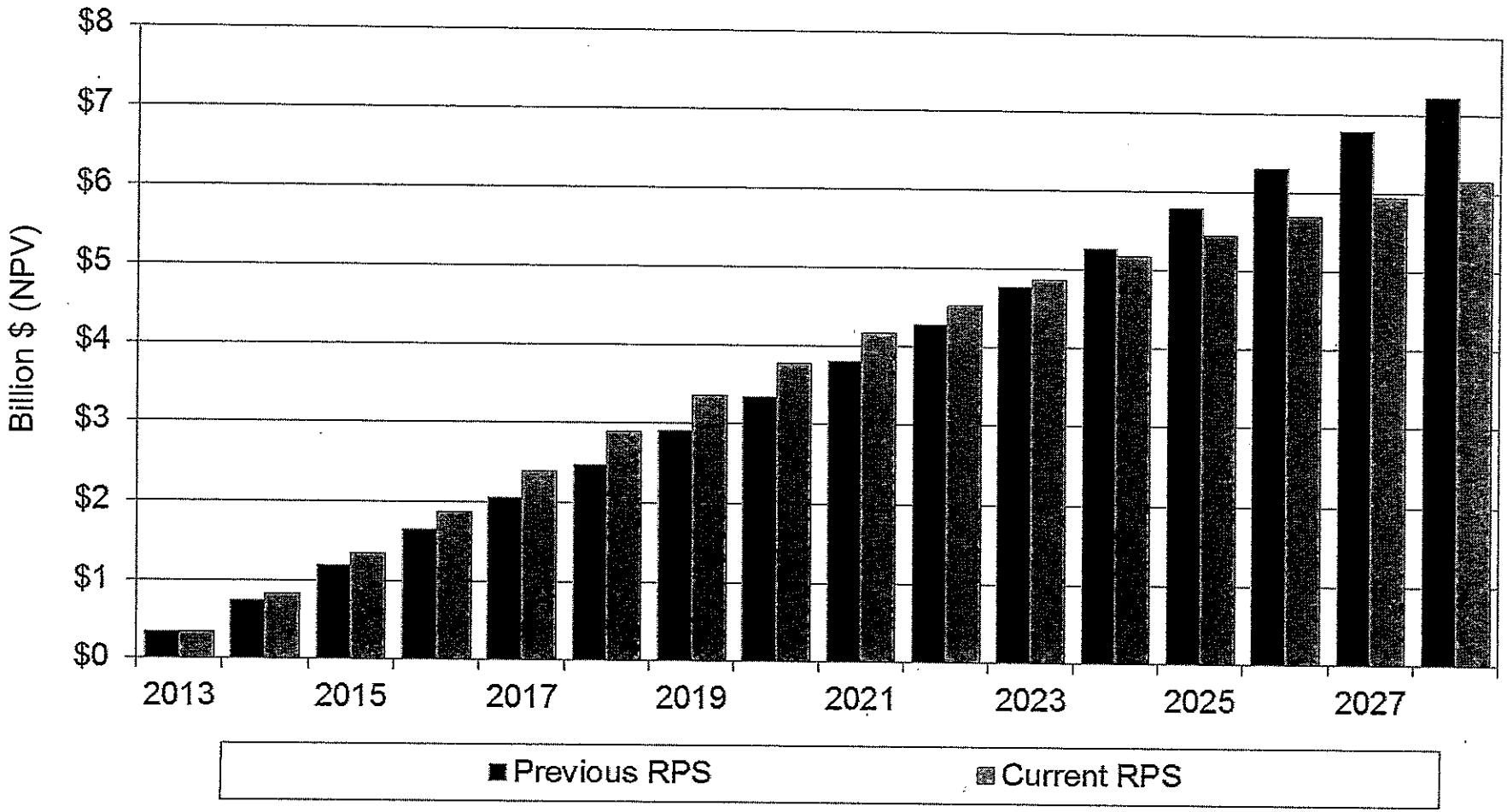
Source: Energy Information Administration, U.S. Department of Energy.

Comparison of Current and Prior Solar RPS Requirements



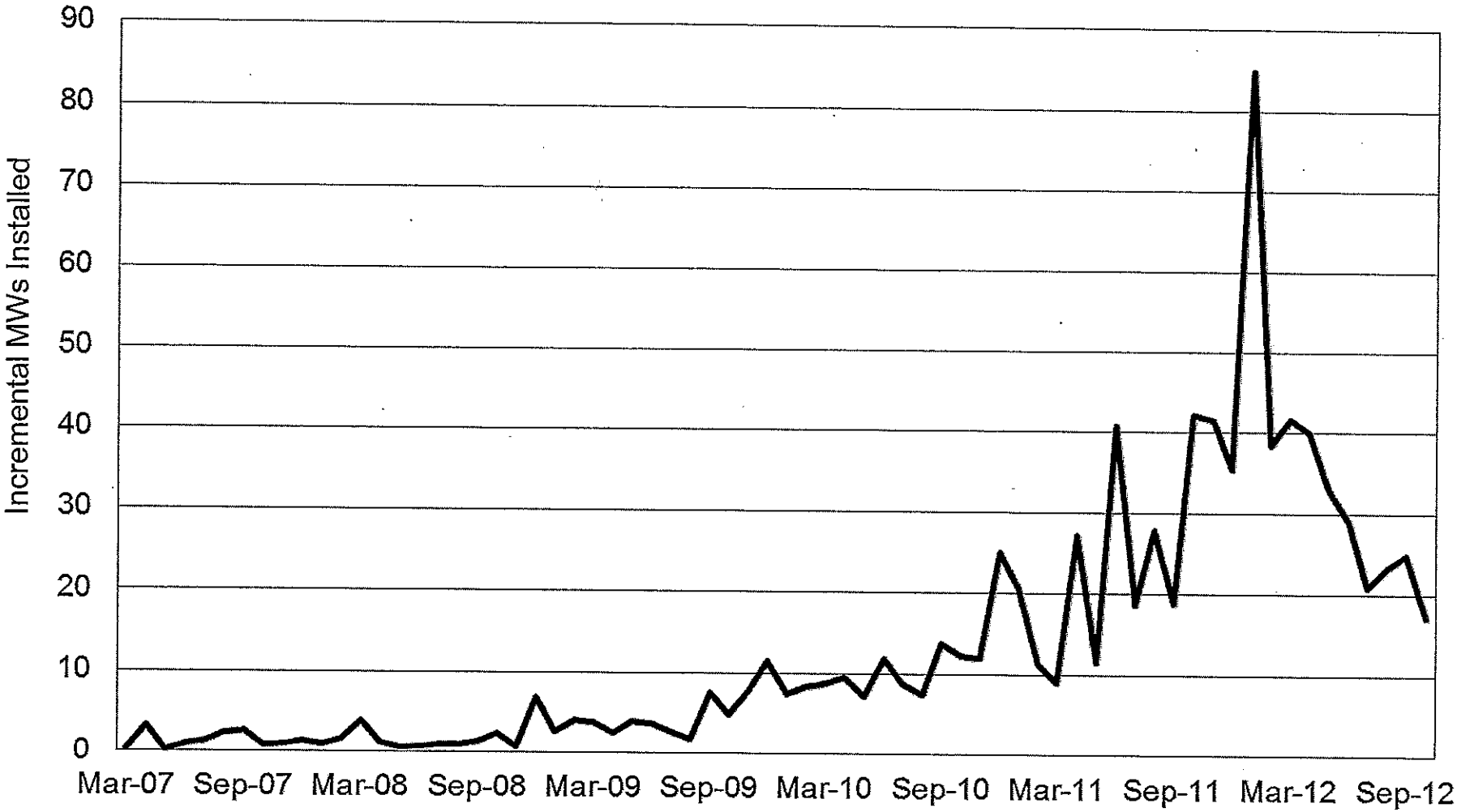
Source: Office of Clean Energy, Solar Market FAQs.

Cumulative Ratepayer Exposure, Previous and Current RPS



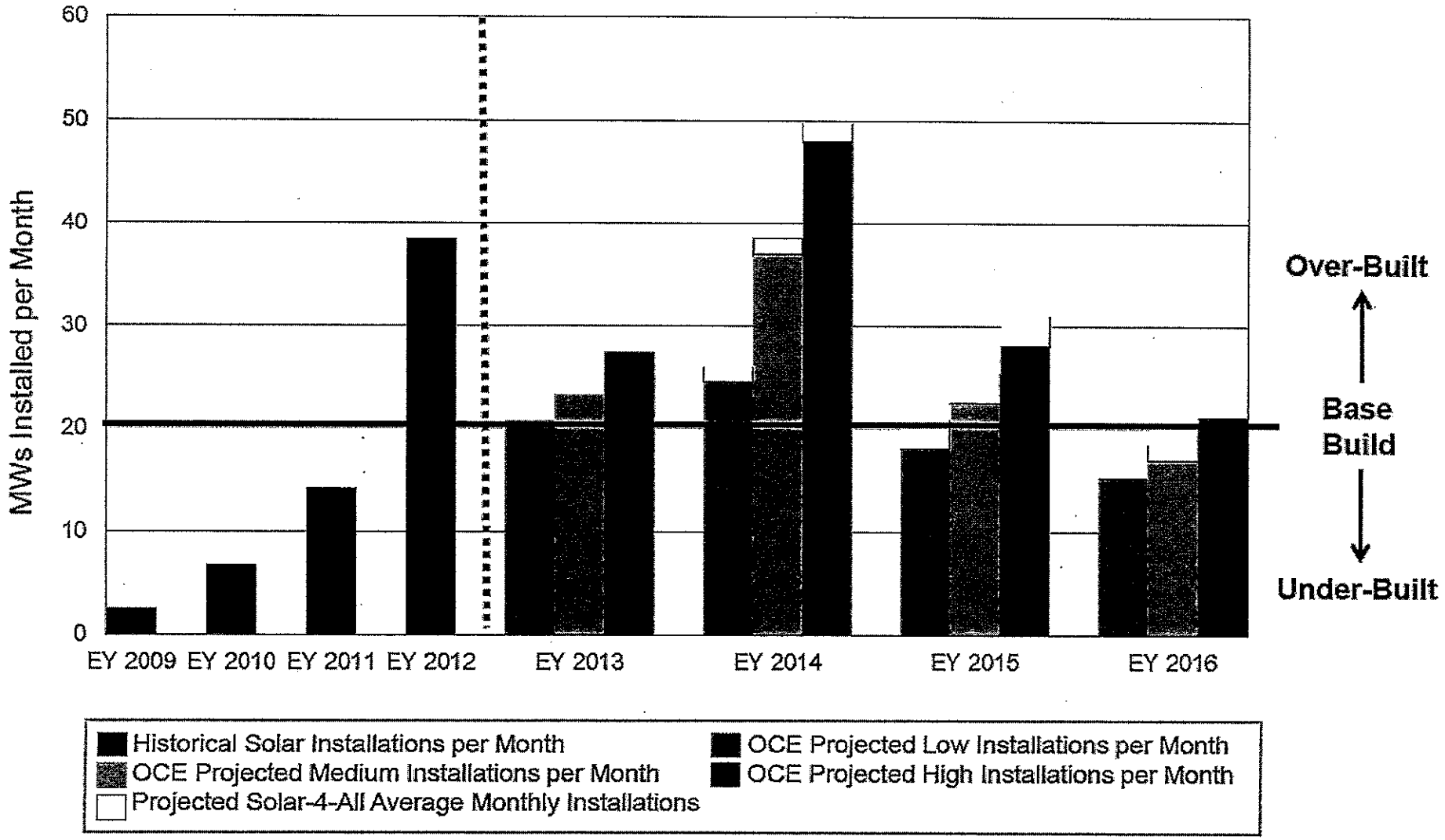
Source: Office of Clean Energy, Solar Market FAQs.

Historical Monthly Solar Installations



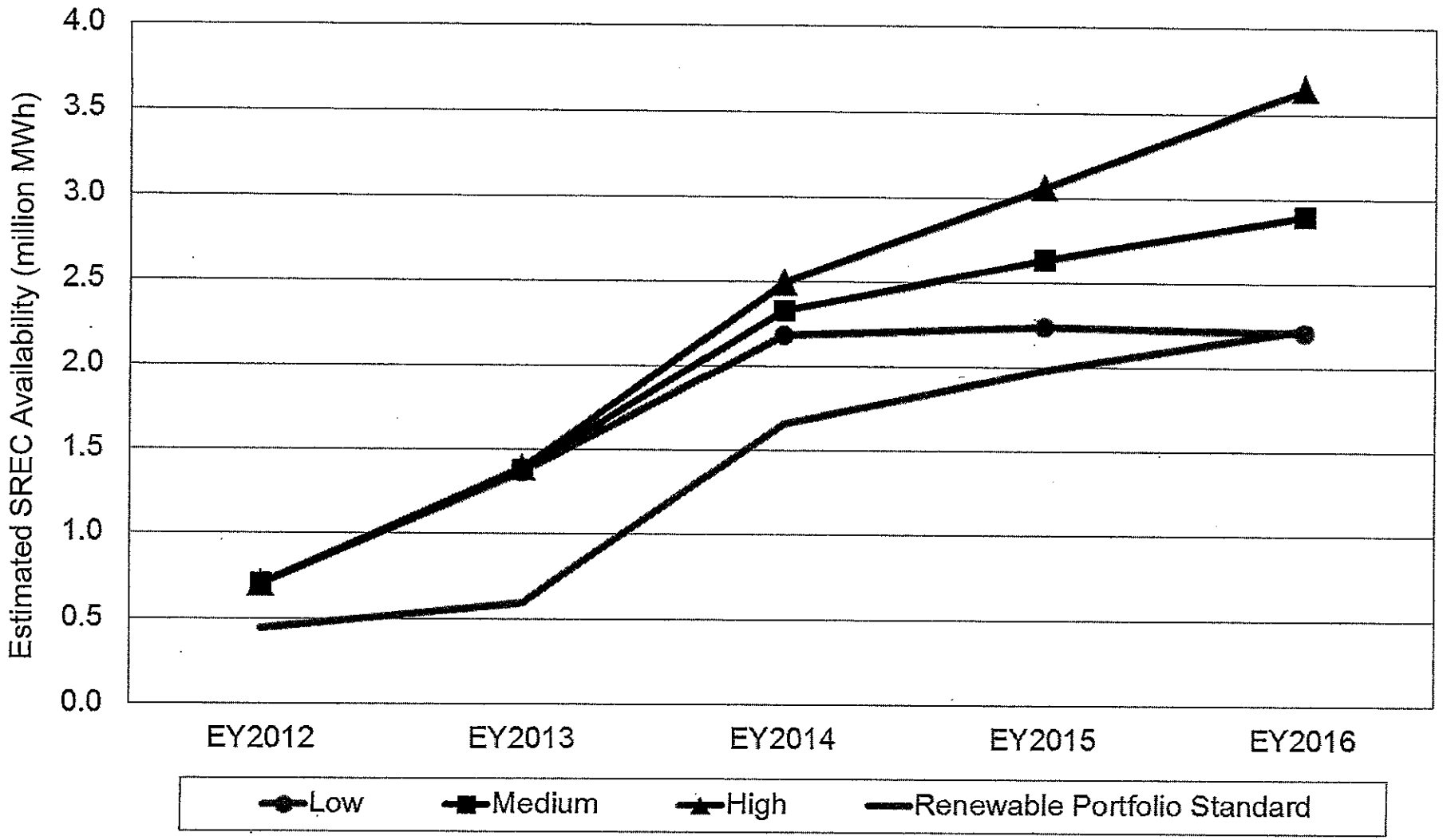
Source: Office of Clean Energy, Solar Installation Summary (as of Oct. 31, 2012).

Office of Clean Energy
Projected Monthly Solar Installations



Source: Office of Clean Energy, Solar Installation Summary and Solar Installed Capacity Forecast (as of Oct. 31, 2012); and Company Response to RCR-A-15.

Office of Clean Energy SREC Supply Projections (EY2012-EY2016)



Source: Office of Clean Energy, Solar Installed Capacity Forecast (as of Oct. 31, 2012).

Office of Clean Energy SREC Supply Projections (EY2012-EY2016)

NJCEP Solar Generation Forecast				
Energy Year	Item	Low	Medium	High
2012	OCE Projected SREC Availability (MWh)	704,688	704,688	704,688
	NJ Solar RPS Requirement (MWh)	442,000	442,000	442,000
	Percentage of RPS Requirement	**159.43%**	**159.43%**	**159.43%**
2013	OCE Projected SREC Availability (MWh)	1,367,488	1,377,688	1,394,288
	NJ Solar RPS Requirement (MWh)	596,000	596,000	596,000
	Percentage of RPS Requirement	**229.44%**	**231.16%**	**233.94%**
2014	OCE Projected SREC Availability (MWh)	2,184,788	2,327,188	2,489,788
	NJ Solar RPS Requirement (MWh)	1,660,500	1,660,500	1,660,500
	Percentage of RPS Requirement	**131.57%**	**140.15%**	**149.94%**
2015	OCE Projected SREC Availability (MWh)	2,239,388	2,632,388	3,058,288
	NJ Solar RPS Requirement (MWh)	1,984,500	1,984,500	1,984,500
	Percentage of RPS Requirement	**112.84%**	**132.65%**	**154.11%**
2016	OCE Projected SREC Availability (MWh)	2,207,388	2,893,988	3,653,288
	NJ Solar RPS Requirement (MWh)	2,227,500	2,227,500	2,227,500
	Percentage of RPS Requirement	**99.10%**	**129.92%**	**164.01%**

Source: Office of Clean Energy, Solar Installed Capacity Forecast (as of Oct. 31, 2012).

BNEF's Forecast of New Jersey Solar Supply

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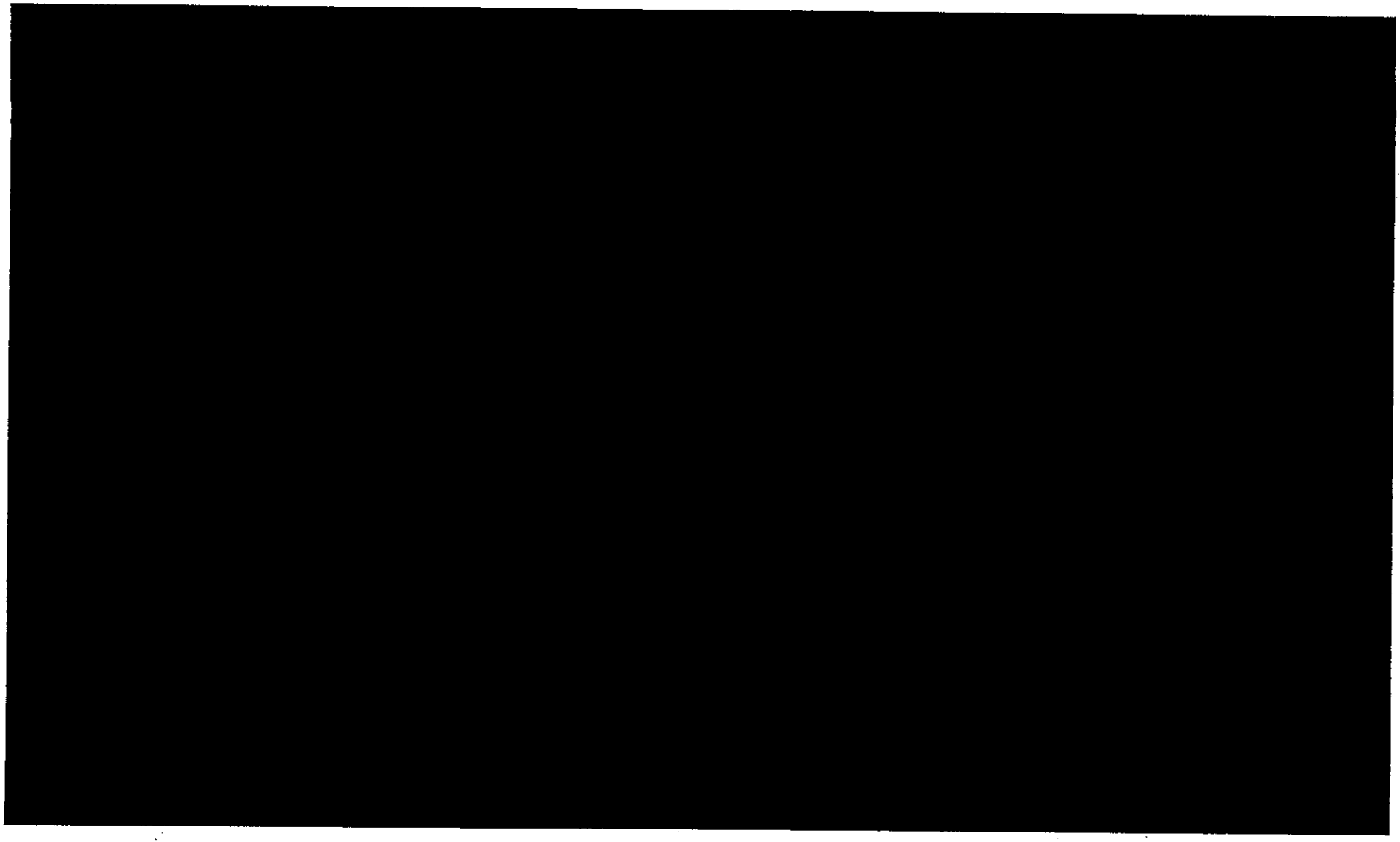

Source: Company Response to RCR-P-1, Bloomberg New Energy Finance 2012 Q4 Quarterly Update.

BNEF's Forecast of Solar Supply in Multiple States

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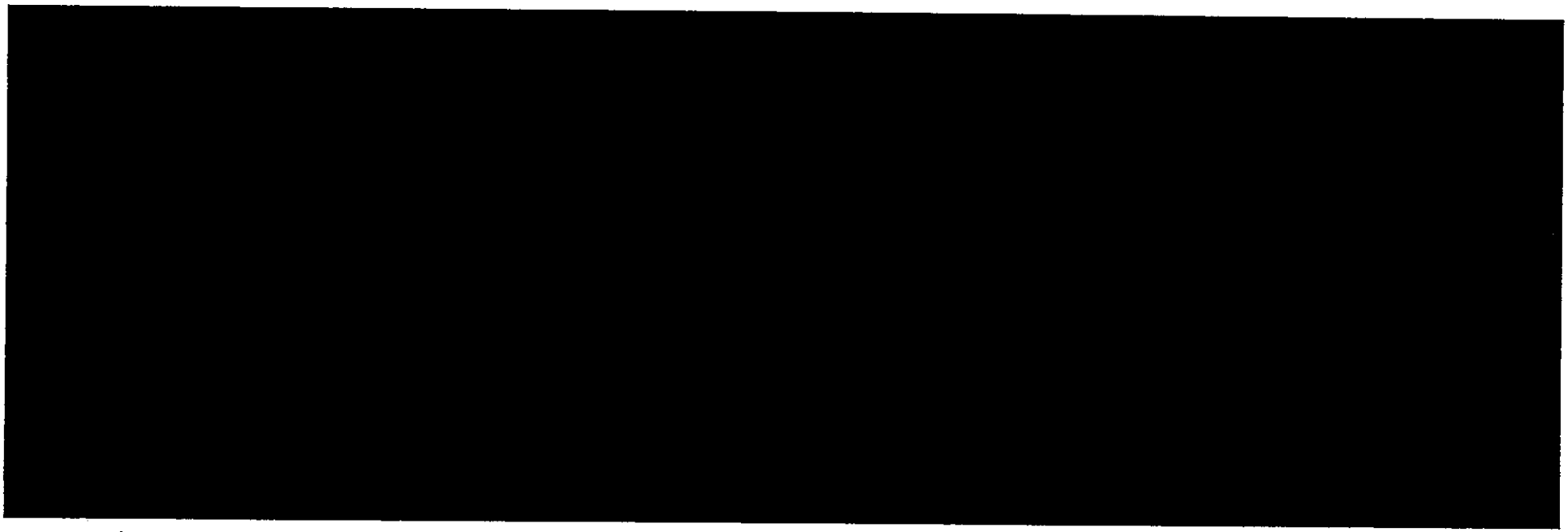

Source: Company Response to RCR-P-1, Bloomberg New Energy Finance 2012 Q4 Quarterly Update.

BNEF's System Price and SREC Equilibrium Prices, 2012-2020

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Source: Company Response to RCR-P-1, Bloomberg New Energy Finance 2012 Q4 Quarterly Update.

Historical and Projected Solar Generation with Solar 4 All Extension

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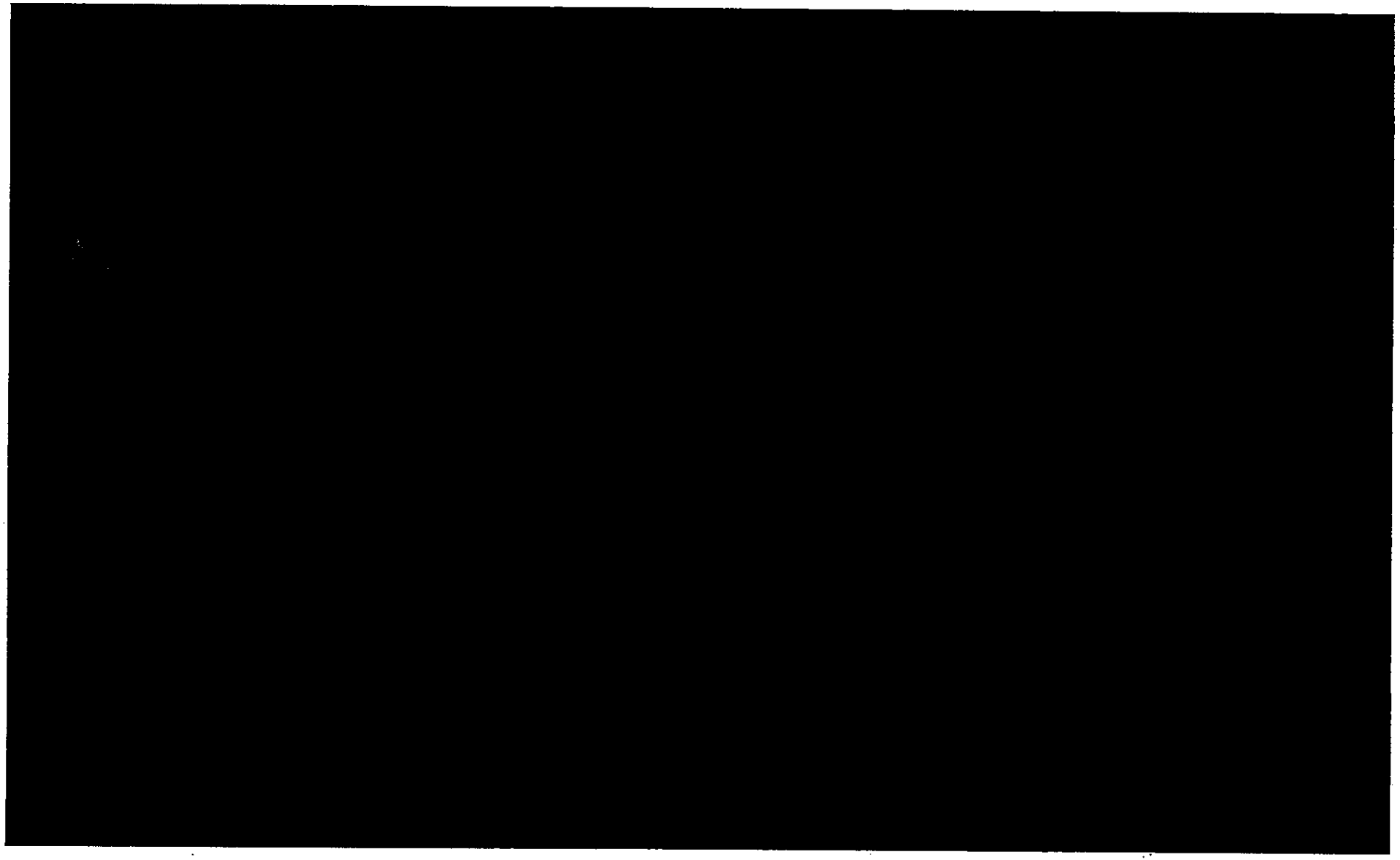


Source: Office of Clean Energy, Solar Installation Summary and Solar Installed Capacity Forecast (as of Oct. 31, 2012); Office of Clean Energy, Solar Generation Forecast (as of Oct. 31, 2012); and Bloomberg New Energy Finance 2012 Q4 Quarterly Update.

PSE&G Installed Cost per Segment ($/Watt)

	Landfill	Warehouse	Parking Lot	Pilot/ Demo
	($/Watt)			
Capitalized Costs				
Panel Price	$0.80	$0.80	$0.80	$1.00
Inverter Cost	0.25	0.25	0.25	0.25
Installation	1.25	1.00	1.29	1.50
Engineering	0.25	0.10	0.20	0.25
Site Preparation and Permitting	0.50	0.25	0.40	0.50
Communications Cost	0.03	0.03	0.03	0.03
Interconnection	0.15	0.10	0.10	0.15
Support Structure Racking/Other	0.70	0.45	1.08	2.90
Total without Contingency	**$3.93**	**$2.98**	**$4.15**	**$6.58**
Other Capitalized Costs	$0.15	$0.12	$0.13	$0.07
Unknown Site Conditions	0.76	0.30	0.62	1.32
Contingency	0.42	0.30	0.42	0.66
Total Unknown Costs	**$1.33**	**$0.72**	**$1.17**	**$2.05**
Total Cost	**$5.26**	**$3.70**	**$5.32**	**$8.63**
Unknown Costs as a Percent of Total	**25.3%**	**19.5%**	**22.0%**	**23.8%**

Source: Company Responses to RCR-P-26, RCR-P-27, RCR-P-28, and RCR-P-29.

PSE&G Landfill/Brownfield Sites

Solar Project	Capacity (MW)	Installed Cost ($)	Installed Cost ($/kW)	Completion Date	Development Time (months)
Trenton Solar Farm, Trenton	1.3	$ 6,243,262	$ 4,803	Sep-10	11
Silver Lake Solar Farm, Edison	2.0	$ 10,853,834	$ 5,427	Nov-10	13
Linden Solar Farm, Linden	3.2	$ 14,949,045	$ 4,672	Dec-10	14
Hackensack Solar Farm, Hackensack	1.1	$ 6,000,000	$ 5,455	Dec-12	19
Kearny Landfill, Kearny	3.0	$ 9,574,888	$ 3,192	Dec-11	16

Source: Company Response to RCR-P-25.

JEDI Estimated Economic Impact with Leakage (Construction and O&M only)

Year	Economic Impacts - Output (million $)											
	Construction				O&M				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	$ 14.93	$ 5.15	$ 7.97	$ 28.05	$ 0.35	$ 0.58	$ 0.81	$ 1.74	$ 15.29	$ 5.73	$ 8.77	$ 29.79
2014	40.40	13.93	21.56	75.89	0.77	1.28	1.76	3.81	41.17	15.20	23.32	79.70
2015	82.62	28.48	44.09	155.19	1.50	2.48	3.42	7.40	84.12	30.96	47.51	162.59
2016	81.28	28.02	43.38	152.68	2.81	4.65	6.42	13.88	84.10	32.67	49.80	166.56
2017	29.12	10.04	15.54	54.69	4.45	7.36	10.15	21.95	33.56	17.39	25.68	76.64
2018	-	-	-	-	4.81	7.97	10.99	23.77	4.81	7.97	10.99	23.77
2019	-	-	-	-	4.94	8.18	11.28	24.40	4.94	8.18	11.28	24.40
2020	-	-	-	-	5.08	8.40	11.58	25.06	5.08	8.40	11.58	25.06
2021	-	-	-	-	5.21	8.62	11.89	25.73	5.21	8.62	11.89	25.73
2022	-	-	-	-	5.35	8.85	12.21	26.42	5.35	8.85	12.21	26.42
2023	1.16	0.40	0.62	2.18	5.50	9.09	12.54	27.12	6.66	9.49	13.16	29.30
2024	2.84	0.98	1.52	5.34	5.64	9.33	12.87	27.85	8.48	10.31	14.39	33.19
2025	6.71	2.31	3.58	12.60	5.79	9.58	13.22	28.60	12.50	11.90	16.80	41.20
2026	6.45	2.22	3.44	12.12	5.95	9.84	13.57	29.37	12.40	12.07	17.02	41.48
2027	2.59	0.89	1.38	4.86	6.11	10.11	13.94	30.15	8.70	11.00	15.32	35.02
2028	-	-	-	-	6.27	10.38	14.31	30.96	6.27	10.38	14.31	30.96
2029	-	-	-	-	6.37	10.54	14.54	31.46	6.37	10.54	14.54	31.46
2030	-	-	-	-	6.02	9.96	13.74	29.72	6.02	9.96	13.74	29.72
2031	-	-	-	-	6.19	10.23	14.11	30.53	6.19	10.23	14.11	30.53
2032	-	-	-	-	6.35	10.51	14.50	31.36	6.35	10.51	14.50	31.36
2033	-	-	-	-	6.26	10.36	14.29	30.91	6.26	10.36	14.29	30.91
2034	-	-	-	-	6.41	10.60	14.63	31.64	6.41	10.60	14.63	31.64
2035	-	-	-	-	6.34	10.49	14.47	31.30	6.34	10.49	14.47	31.30
2036	-	-	-	-	4.68	7.73	10.67	23.08	4.68	7.73	10.67	23.08
TOTAL	$ 268.10	$ 92.41	$ 143.07	$ 503.59	$ 119.17	$ 197.13	$ 271.91	$ 588.21	$ 387.27	$ 289.55	$ 414.99	$ 1,091.80
NPV	$ 177.71	$ 61.26	$ 94.84	$ 333.81	$ 29.73	$ 49.18	$ 67.84	$ 146.75	$ 207.45	$ 110.44	$ 162.68	$ 480.56

JEDI Estimated Economic Impact with Leakage (Construction and O&M only)

Year	Economic Impacts - Employment (number of jobs)											
	Construction				O&M				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	159	28	47	234	4	3	5	12	163	31	52	246
2014	430	74	128	633	9	7	10	26	439	81	139	659
2015	879	152	262	1,294	18	13	20	51	897	166	283	1,345
2016	865	150	258	1,273	33	25	38	96	898	175	296	1,369
2017	310	54	92	456	52	39	60	152	362	93	153	608
2018	0	0	0	0	57	43	65	165	57	43	65	165
2019	0	0	0	0	58	44	67	169	58	44	67	169
2020	0	0	0	0	60	45	69	174	60	45	69	174
2021	0	0	0	0	61	46	71	178	61	46	71	178
2022	0	0	0	0	63	48	73	183	63	48	73	183
2023	12	2	4	18	65	49	75	188	77	51	78	206
2024	30	5	9	45	66	50	77	193	97	55	86	238
2025	71	12	21	105	68	51	79	198	140	64	100	303
2026	69	12	20	101	70	53	81	204	139	65	101	305
2027	28	5	8	41	72	54	83	209	99	59	91	250
2028	0	0	0	0	74	56	85	215	74	56	85	215
2029	0	0	0	0	75	57	87	218	75	57	87	218
2030	0	0	0	0	71	53	82	206	71	53	82	206
2031	0	0	0	0	73	55	84	212	73	55	84	212
2032	0	0	0	0	75	56	86	218	75	56	86	218
2033	0	0	0	0	74	56	85	214	74	56	85	214
2034	0	0	0	0	75	57	87	220	75	57	87	220
2035	0	0	0	0	75	56	86	217	75	56	86	217
2036	0	0	0	0	55	42	64	160	55	42	64	160
TOTAL	2,853	494	852	4,199	1,403	1,058	1,619	4,080	4,256	1,552	2,471	8,279

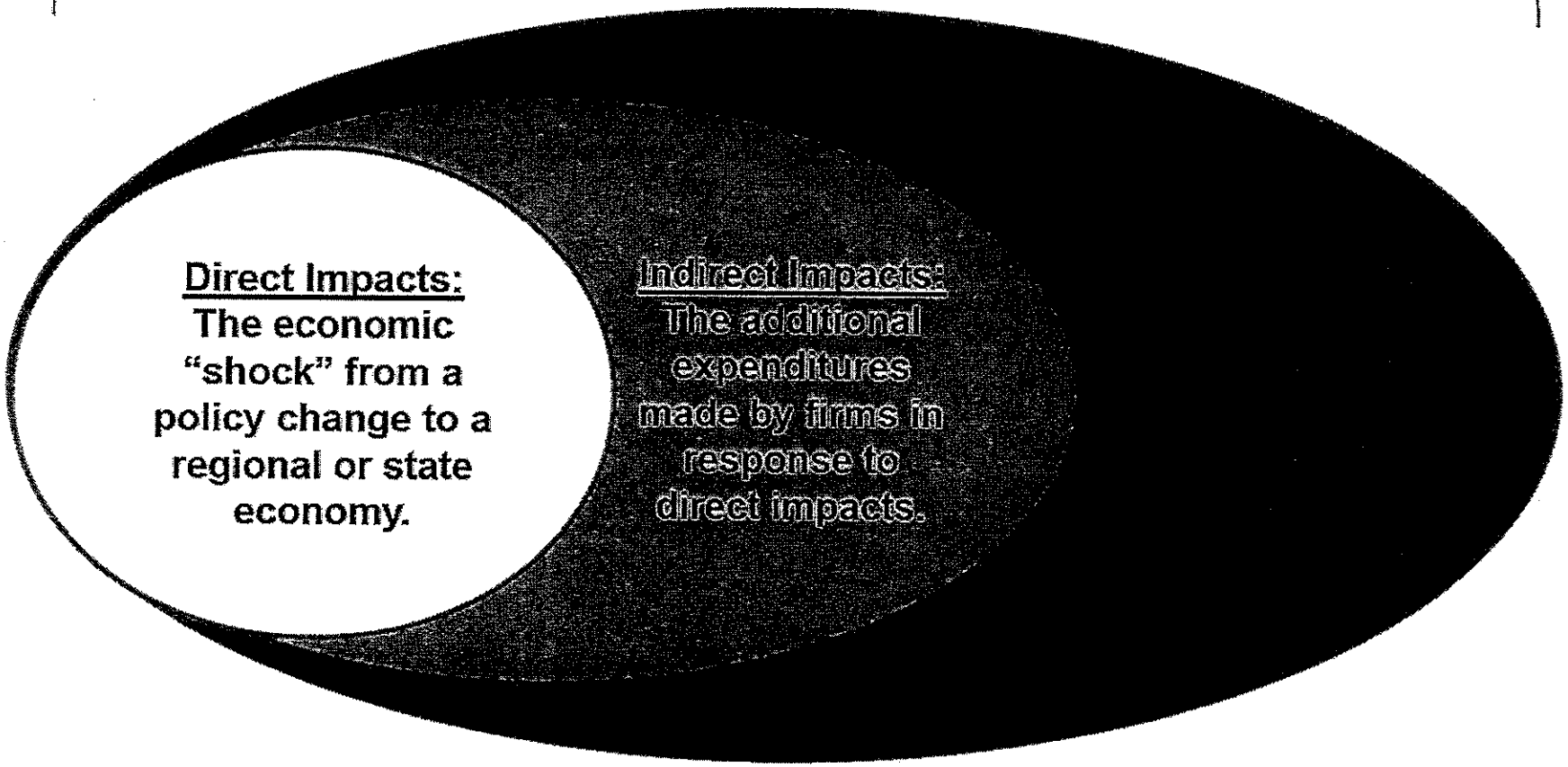
JEDI Estimated Economic Impact with Leakage (Construction and O&M only)

Year	Economic Impacts - Labor Income (million $)											
	Construction				O&M				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	$ 10.11	$ 1.64	$ 2.39	$ 14.13	$ 0.27	$ 0.19	$ 0.23	$ 0.69	$ 10.37	$ 1.83	$ 2.61	$ 14.83
2014	27.34	4.44	6.46	38.24	0.58	0.41	0.49	1.52	27.92	4.85	6.95	39.75
2015	55.91	9.08	13.20	78.19	1.13	0.79	0.96	2.94	57.04	9.87	14.16	81.14
2016	55.01	8.93	12.99	76.93	2.11	1.49	1.80	5.52	57.12	10.42	14.79	82.45
2017	19.70	3.20	4.65	27.56	3.34	2.35	2.85	8.73	23.05	5.55	7.50	36.29
2018	-	-	-	-	3.62	2.55	3.09	9.45	3.62	2.55	3.09	9.45
2019	-	-	-	-	3.71	2.61	3.17	9.71	3.71	2.61	3.17	9.71
2020	-	-	-	-	3.81	2.68	3.25	9.97	3.81	2.68	3.25	9.97
2021	-	-	-	-	3.92	2.75	3.34	10.23	3.92	2.75	3.34	10.23
2022	-	-	-	-	4.02	2.83	3.43	10.51	4.02	2.83	3.43	10.51
2023	0.79	0.13	0.19	1.10	4.13	2.90	3.52	10.79	4.91	3.03	3.71	11.89
2024	1.92	0.31	0.45	2.69	4.24	2.98	3.62	11.08	6.16	3.29	4.07	13.77
2025	4.54	0.74	1.07	6.35	4.35	3.06	3.71	11.37	8.89	3.80	4.79	17.72
2026	4.37	0.71	1.03	6.11	4.47	3.14	3.81	11.68	8.84	3.85	4.84	17.79
2027	1.75	0.28	0.41	2.45	4.59	3.23	3.92	11.99	6.34	3.51	4.33	14.44
2028	-	-	-	-	4.71	3.32	4.02	12.32	4.71	3.32	4.02	12.32
2029	-	-	-	-	4.79	3.37	4.08	12.51	4.79	3.37	4.08	12.51
2030	-	-	-	-	4.52	3.18	3.86	11.82	4.52	3.18	3.86	11.82
2031	-	-	-	-	4.65	3.27	3.96	12.14	4.65	3.27	3.96	12.14
2032	-	-	-	-	4.77	3.36	4.07	12.47	4.77	3.36	4.07	12.47
2033	-	-	-	-	4.71	3.31	4.01	12.29	4.71	3.31	4.01	12.29
2034	-	-	-	-	4.82	3.39	4.11	12.59	4.82	3.39	4.11	12.59
2035	-	-	-	-	4.77	3.35	4.06	12.45	4.77	3.35	4.06	12.45
2036	-	-	-	-	3.51	2.47	3.00	9.18	3.51	2.47	3.00	9.18
TOTAL	$181.43	$ 29.46	$ 42.84	$253.74	$ 89.54	$ 62.99	$ 76.38	$233.96	$270.97	$ 92.45	$119.22	$ 487.69
NPV	$120.27	$ 19.53	$ 28.40	$168.19	$ 22.34	$ 15.72	$ 19.06	$ 58.37	$142.61	$ 35.25	$ 47.45	$ 226.56

Net Benefits Analysis

Economic impacts are estimated to be the sum of the direct, indirect and induced effects that an investment or policy change has on a regional or state economy.

Total Economic Impact



Net Benefits Analysis

Net benefits calculation must include the direct, indirect and induced impacts from both the rate impacts and project development and operation.

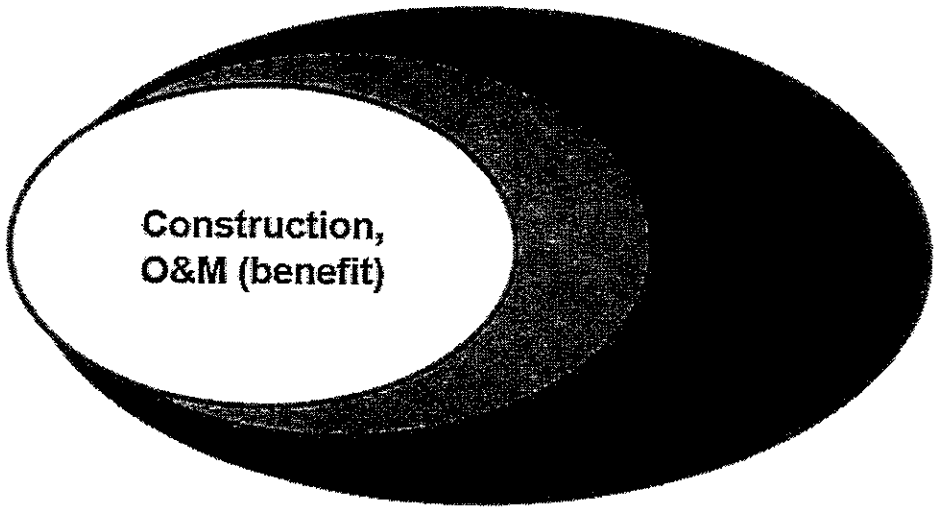
Net Economic Benefits

Direct, Indirect & Induced Impacts

Rate Impacts (cost)

Net Project Rate Impacts (Cost)

Direct, Indirect & Induced Impacts



Project Development and Operations Impacts (Benefits)

Net Economic Benefits using PSE&G Rate Impacts

Year	Economic Impacts - Output (million $) Construction and O&M Direct	Indirect	Induced	Total	Rate Impact Direct	Indirect	Induced	Total	Total Direct	Indirect	Induced	Total
2013	$ 15.29	$ 5.73	$ 8.77	$ 29.79	$ (1.49)	$ (0.38)	$ (0.94)	$ (2.79)	$ 13.80	$ 5.35	$ 7.84	$ 27.00
2014	41.17	15.20	23.32	79.70	(7.58)	(1.94)	(4.78)	(14.21)	33.59	13.26	18.54	65.49
2015	84.12	30.96	47.51	162.59	(23.51)	(6.01)	(14.83)	(44.08)	60.61	24.94	32.68	118.50
2016	84.10	32.67	49.80	166.56	(41.84)	(10.70)	(26.39)	(78.45)	42.25	21.97	23.41	88.11
2017	33.56	17.39	25.68	76.64	(68.77)	(17.59)	(43.37)	(128.94)	(35.21)	(0.20)	(17.69)	(52.31)
2018	4.81	7.97	10.99	23.77	(64.07)	(16.38)	(40.40)	(120.12)	(59.25)	(8.42)	(29.42)	(96.35)
2019	4.94	8.18	11.28	24.40	(54.53)	(13.95)	(34.39)	(102.24)	(49.59)	(5.77)	(23.11)	(77.84)
2020	5.08	8.40	11.58	25.06	(45.85)	(11.73)	(28.92)	(85.97)	(40.78)	(3.33)	(17.33)	(60.91)
2021	5.21	8.62	11.89	25.73	(39.42)	(10.08)	(24.86)	(73.91)	(34.21)	(1.46)	(12.97)	(48.19)
2022	5.35	8.85	12.21	26.42	(32.78)	(8.38)	(20.67)	(61.46)	(27.43)	0.47	(8.46)	(35.05)
2023	6.66	9.49	13.16	29.30	(29.79)	(7.62)	(18.79)	(55.85)	(23.13)	1.87	(5.63)	(26.55)
2024	8.48	10.31	14.39	33.19	(28.87)	(7.38)	(18.21)	(54.12)	(20.38)	2.93	(3.81)	(20.94)
2025	12.50	11.90	16.80	41.20	(30.26)	(7.74)	(19.08)	(56.74)	(17.76)	4.16	(2.29)	(15.54)
2026	12.40	12.07	17.02	41.48	(32.47)	(8.30)	(20.48)	(60.88)	(20.07)	3.76	(3.46)	(19.40)
2027	8.70	11.00	15.32	35.02	(32.66)	(8.35)	(20.60)	(61.24)	(23.96)	2.65	(5.28)	(26.22)
2028	6.27	10.38	14.31	30.96	(32.12)	(8.21)	(20.25)	(60.22)	(25.84)	2.16	(5.94)	(29.25)
2029	6.37	10.54	14.54	31.46	(29.65)	(7.58)	(18.70)	(55.59)	(23.28)	2.96	(4.16)	(24.13)
2030	6.02	9.96	13.74	29.72	(38.95)	(9.96)	(24.56)	(73.03)	(32.93)	0.00	(10.82)	(43.30)
2031	6.19	10.23	14.11	30.53	(38.95)	(9.96)	(24.56)	(73.03)	(32.76)	0.27	(10.45)	(42.50)
2032	6.35	10.51	14.50	31.36	(38.95)	(9.96)	(24.56)	(73.03)	(32.60)	0.55	(10.07)	(41.67)
2033	6.26	10.36	14.29	30.91	(38.95)	(9.96)	(24.56)	(73.03)	(32.69)	0.40	(10.27)	(42.12)
2034	6.41	10.60	14.63	31.64	(38.95)	(9.96)	(24.56)	(73.03)	(32.54)	0.64	(9.94)	(41.38)
2035	6.34	10.49	14.47	31.30	(38.95)	(9.96)	(24.56)	(73.03)	(32.61)	0.53	(10.09)	(41.72)
2036	4.68	7.73	10.67	23.08	(38.95)	(9.96)	(24.56)	(73.03)	(34.27)	(2.23)	(13.90)	(49.95)
TOTAL	$ 387.27	$ 289.55	$ 414.99	$ 1,091.80	$ (868.32)	$ (222.07)	$ (547.60)	$ (1,628.02)	$ (481.05)	$ 67.48	$ (132.61)	$ (536.22)
NPV	$ 207.45	$ 110.44	$ 162.68	$ 480.56	$ (264.11)	$ (67.55)	$ (166.56)	$ (495.19)	$ (56.67)	$ 42.89	$ (3.88)	$ (14.63)

Net Economic Benefits using PSE&G Rate Impacts

Year	Economic Impacts - Employment (number of jobs)											
	Construction and O&M				Rate Impact				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	163	31	52	246	(15)	(1)	(4)	(20)	148	30	48	226
2014	439	81	139	659	(75)	(4)	(22)	(101)	364	77	117	559
2015	897	166	283	1345	(233)	(13)	(67)	(312)	664	153	216	1033
2016	898	175	296	1369	(414)	(23)	(119)	(556)	484	152	178	814
2017	362	93	153	608	(680)	(38)	(195)	(913)	(318)	56	(42)	(305)
2018	57	43	65	165	(634)	(35)	(182)	(851)	(577)	8	(117)	(686)
2019	58	44	67	169	(539)	(30)	(155)	(724)	(481)	14	(88)	(555)
2020	60	45	69	174	(453)	(25)	(130)	(609)	(394)	20	(61)	(435)
2021	61	46	71	178	(390)	(22)	(112)	(523)	(329)	25	(41)	(345)
2022	63	48	73	183	(324)	(18)	(93)	(435)	(261)	30	(20)	(252)
2023	77	51	78	206	(295)	(16)	(85)	(395)	(218)	35	(6)	(189)
2024	97	55	86	238	(286)	(16)	(82)	(383)	(189)	40	4	(146)
2025	140	64	100	303	(299)	(17)	(86)	(402)	(160)	47	14	(98)
2026	139	65	101	305	(321)	(18)	(92)	(431)	(182)	47	9	(126)
2027	99	59	91	250	(323)	(18)	(93)	(434)	(224)	41	(2)	(184)
2028	74	56	85	215	(318)	(18)	(91)	(426)	(244)	38	(6)	(212)
2029	75	57	87	218	(293)	(16)	(84)	(394)	(218)	40	2	(175)
2030	71	53	82	206	(385)	(21)	(111)	(517)	(314)	32	(29)	(311)
2031	73	55	84	212	(385)	(21)	(111)	(517)	(312)	34	(27)	(305)
2032	75	56	86	218	(385)	(21)	(111)	(517)	(310)	35	(24)	(300)
2033	74	56	85	214	(385)	(21)	(111)	(517)	(312)	34	(26)	(303)
2034	75	57	87	220	(385)	(21)	(111)	(517)	(310)	36	(24)	(298)
2035	75	56	86	217	(385)	(21)	(111)	(517)	(311)	35	(24)	(300)
2036	55	42	64	160	385	21	111	517	440	63	174	677
TOTAL	4,256	1,552	2,471	8,279	(7,818)	(431)	(2,245)	(10,494)	(3,561)	1,121	226	(2,214)

Net Economic Benefits using PSE&G Rate Impacts

Year	Economic Impacts - Labor Income (million $)											
	Construction and O&M				Rate Impact				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	$ 10.37	$ 1.83	$ 2.61	$ 14.83	$ (0.71)	$ (0.05)	$ (0.28)	$ (1.04)	$ 9.66	$ 1.77	$ 2.34	$ 13.78
2014	27.92	4.85	6.95	39.75	(3.63)	(0.28)	(1.40)	(5.31)	24.29	4.57	5.55	34.44
2015	57.04	9.87	14.16	81.14	(11.27)	(0.86)	(4.35)	(16.47)	45.77	9.01	9.81	64.66
2016	57.12	10.42	14.79	82.45	(20.05)	(1.53)	(7.74)	(29.32)	37.07	8.89	7.05	53.13
2017	23.05	5.55	7.50	36.29	(32.96)	(2.51)	(12.72)	(48.19)	(9.91)	3.04	(5.22)	(11.90)
2018	3.62	2.55	3.09	9.45	(30.70)	(2.34)	(11.85)	(44.89)	(27.08)	0.21	(8.77)	(35.44)
2019	3.71	2.61	3.17	9.71	(26.13)	(1.99)	(10.09)	(38.21)	(22.42)	0.62	(6.92)	(28.50)
2020	3.81	2.68	3.25	9.97	(21.97)	(1.67)	(8.48)	(32.13)	(18.16)	1.01	(5.23)	(22.16)
2021	3.92	2.75	3.34	10.23	(18.89)	(1.44)	(7.29)	(27.62)	(14.97)	1.32	(3.95)	(17.39)
2022	4.02	2.83	3.43	10.51	(15.71)	(1.20)	(6.06)	(22.97)	(11.69)	1.63	(2.63)	(12.46)
2023	4.91	3.03	3.71	11.89	(14.27)	(1.09)	(5.51)	(20.87)	(9.36)	1.94	(1.80)	(8.99)
2024	6.16	3.29	4.07	13.77	(13.83)	(1.05)	(5.34)	(20.23)	(7.67)	2.24	(1.27)	(6.46)
2025	8.89	3.80	4.79	17.72	(14.50)	(1.10)	(5.60)	(21.20)	(5.61)	2.69	(0.81)	(3.48)
2026	8.84	3.85	4.84	17.79	(15.56)	(1.19)	(6.01)	(22.75)	(6.72)	2.67	(1.16)	(4.97)
2027	6.34	3.51	4.33	14.44	(15.65)	(1.19)	(6.04)	(22.89)	(9.31)	2.32	(1.71)	(8.44)
2028	4.71	3.32	4.02	12.32	(15.39)	(1.17)	(5.94)	(22.50)	(10.68)	2.14	(1.92)	(10.19)
2029	4.79	3.37	4.08	12.51	(14.21)	(1.08)	(5.49)	(20.78)	(9.42)	2.29	(1.40)	(8.26)
2030	4.52	3.18	3.86	11.82	(18.66)	(1.42)	(7.21)	(27.29)	(14.14)	1.76	(3.35)	(15.47)
2031	4.65	3.27	3.96	12.14	(18.66)	(1.42)	(7.21)	(27.29)	(14.02)	1.85	(3.24)	(15.15)
2032	4.77	3.36	4.07	12.47	(18.66)	(1.42)	(7.21)	(27.29)	(13.89)	1.94	(3.13)	(14.82)
2033	4.71	3.31	4.01	12.29	(18.66)	(1.42)	(7.21)	(27.29)	(13.96)	1.89	(3.19)	(15.00)
2034	4.82	3.39	4.11	12.59	(18.66)	(1.42)	(7.21)	(27.29)	(13.85)	1.97	(3.10)	(14.71)
2035	4.77	3.35	4.06	12.45	(18.66)	(1.42)	(7.21)	(27.29)	(13.90)	1.93	(3.14)	(14.84)
2036	3.51	2.47	3.00	9.18	(18.66)	(1.42)	(7.21)	(27.29)	(15.15)	1.05	(4.21)	(18.11)
TOTAL	$ 270.97	$ 92.45	$ 119.22	$ 487.69	$ (416.08)	$ (31.70)	$ (160.64)	$ (608.43)	$ (145.11)	$ 60.75	$ (41.42)	$ (120.73)
NPV	$ 142.61	$ 35.25	$ 47.45	$ 226.56	$ (126.56)	$ (9.64)	$ (48.86)	$ (185.06)	$ 16.05	$ 25.60	$ (1.41)	$ 41.50

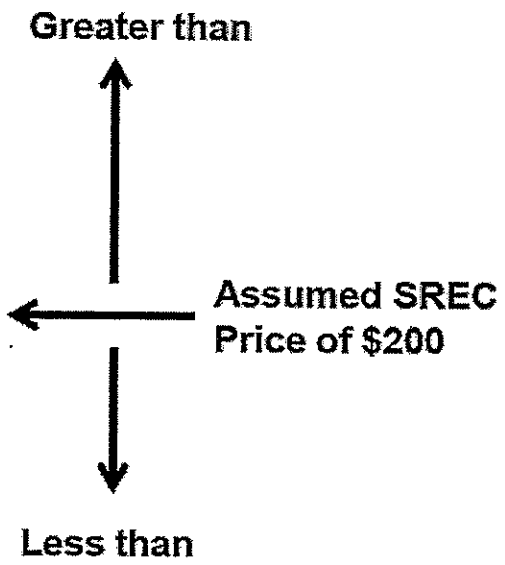
PSE&G Estimated Revenue Credits

Year	Company (million $)			
	Energy	SREC	Capacity	Total
2013	$ -	$ -	$ -	$ -
2014	0.80	1.64	-	2.44
2015	2.33	5.36	-	7.69
2016	6.00	15.24	-	21.24
2017	11.01	27.19	0.24	38.44
2018	12.30	31.64	0.51	44.45
2019	12.85	31.47	1.62	45.94
2020	13.25	31.31	3.41	47.97
2021	14.01	31.14	3.46	48.62
2022	15.05	30.98	3.52	49.54
2023	15.84	30.81	3.58	50.23
2024	16.54	30.65	3.66	50.85
2025	17.14	30.48	3.71	51.33
2026	18.09	30.31	3.78	52.18
2027	18.94	30.13	3.84	52.90
2028	17.32	29.93	3.91	51.17
2029	16.82	28.52	3.98	49.32
2030	13.98	5.28	4.08	23.34
2031	14.54	1.61	4.19	20.34
2032	15.12	-	4.32	19.44
2033	9.93	-	4.15	14.08
2034	6.11	-	3.58	9.69
2035	1.77	-	2.08	3.85
2036	-	-	0.60	0.60
TOTAL	$ 269.75	$ 423.70	$ 62.20	$ 755.64
NPV	$ 72.64	$ 141.69	$ 12.99	$ 227.32

Source: Company Response to RCR-A-1.

Historical Company SREC Auctions

Solar 4 All SRECs Auctioned through October 2012			
SREC Energy Year	Auction Month	Total SRECs Sold	Auction Price
EY 2010	July-11	1,506	$480.00
EY 2011	April-11	1,152	$669.69
EY 2011	July-11	11,631	$475.00
EY 2011	August-11	8,135	$479.75
EY 2011	October-11	1,591	$669.01
EY 2012	October-11	16,456	$227.03
EY 2012	February-11	13,351	$171.63
EY 2012	May-12	15,883	$155.00
EY 2012	July-12	17,873	$135.68
EY 2012	October-12	1,478	$70.02
EY 2013	October-12	24,643	$70.50



Source: Company Response to RCR-P-9.

Revised SREC Prices

REDACTED

Year	Company	Alternative
2013	$ 200.00	
2014	$ 200.00	
2015	$ 200.00	
2016	$ 200.00	
2017	$ 200.00	
2018	$ 200.00	
2019	$ 200.00	
2020	$ 200.00	
2021	$ 200.00	
2022	$ 200.00	
2023	$ 200.00	
2024	$ 200.00	
2025	$ 200.00	
2026	$ 200.00	
2027	$ 200.00	
2028	$ 200.00	
2029	$ 200.00	
2030	$ 200.00	
2031	$ 200.00	
2032	$ 200.00	
2033	$ 200.00	
2034	$ 200.00	
2035	$ 200.00	

Source: Company Response to RCR-A-1; and Company Response to RCR-P-1.

Energy Price Forecast Comparison

CEEEP Avoided Cost Assumptions: October 2012

Year	Wholesale ($/MWh) Summer Peak	Summer Off-Peak	Non-Summer Peak	Non-Summer Off-Peak
2011	$ 64.09	$ 37.03	$ 49.40	$ 40.80
2012	$ 68.53	$ 39.59	$ 52.82	$ 43.63
2013	$ 66.75	$ 38.56	$ 51.45	$ 42.49
2014	$ 67.14	$ 38.79	$ 51.75	$ 42.74
2015	$ 66.93	$ 38.66	$ 51.58	$ 42.60
2016	$ 67.51	$ 39.00	$ 52.04	$ 42.98
2017	$ 71.58	$ 41.35	$ 55.17	$ 45.56
2018	$ 75.29	$ 43.49	$ 58.03	$ 47.93
2019	$ 73.73	$ 42.59	$ 56.83	$ 46.93
2020	$ 80.85	$ 46.71	$ 62.31	$ 51.47
2021	$ 84.92	$ 49.06	$ 65.45	$ 54.06
2022	$ 88.66	$ 51.22	$ 68.34	$ 56.44
2023	$ 93.31	$ 53.91	$ 71.92	$ 59.40
2024	$ 97.53	$ 56.34	$ 75.17	$ 62.08
2025	$ 100.12	$ 57.84	$ 77.17	$ 63.74
2026	$ 102.09	$ 58.98	$ 78.69	$ 64.99
2027	$ 104.65	$ 60.45	$ 80.66	$ 66.62
2028	$ 108.16	$ 62.49	$ 83.37	$ 68.86
2029	$ 112.07	$ 64.74	$ 86.38	$ 71.34
2030	$ 114.73	$ 66.28	$ 88.43	$ 73.03
2031	$ 119.20	$ 68.86	$ 91.87	$ 75.88
2032	$ 122.23	$ 70.61	$ 94.21	$ 77.81
2033	$ 127.14	$ 73.45	$ 97.99	$ 80.93
2034	$ 134.49	$ 77.70	$ 103.66	$ 85.62
2035	$ 141.71	$ 81.87	$ 109.22	$ 90.21

CEEEP Avoided Cost Assumptions: June 2012

Year	Wholesale ($/MWh) Summer Peak	Summer Off-Peak	Non-Summer Peak	Non-Summer Off-Peak
2011	$ -	$ -	$ -	$ -
2012	$ -	$ -	$ -	$ -
2013	$ 68.24	$ 39.42	$ 52.59	$ 43.44
2014	$ 70.15	$ 40.53	$ 54.07	$ 44.66
2015	$ 73.50	$ 42.46	$ 56.65	$ 46.79
2016	$ 75.25	$ 43.47	$ 58.00	$ 47.90
2017	$ 78.92	$ 45.59	$ 60.83	$ 50.24
2018	$ 83.54	$ 48.26	$ 64.39	$ 53.18
2019	$ 87.69	$ 50.66	$ 67.59	$ 55.82
2020	$ 90.87	$ 52.50	$ 70.04	$ 57.85
2021	$ 96.61	$ 55.81	$ 74.47	$ 61.50
2022	$ 104.27	$ 60.24	$ 80.36	$ 66.37
2023	$ 110.32	$ 63.74	$ 85.03	$ 70.23
2024	$ 115.75	$ 66.87	$ 89.21	$ 73.68
2025	$ 120.53	$ 69.63	$ 92.90	$ 76.73
2026	$ 127.86	$ 73.87	$ 98.55	$ 81.40
2027	$ 134.56	$ 77.74	$ 103.71	$ 85.66
2028	$ 137.27	$ 79.30	$ 105.80	$ 87.38
2029	$ 138.86	$ 80.22	$ 107.03	$ 88.40
2030	$ 143.17	$ 82.71	$ 110.35	$ 91.14
2031	$ 149.61	$ 86.43	$ 115.32	$ 95.24
2032	$ 156.35	$ 90.32	$ 120.50	$ 99.53
2033	$ 163.38	$ 94.39	$ 125.93	$ 104.01
2034	$ 170.73	$ 98.63	$ 131.59	$ 108.69
2035	$ 178.42	$ 103.07	$ 137.52	$ 113.58

Source: Energy Efficiency Cost-Benefit Analysis Avoided Cost Assumptions, Rutgers: Center for Energy Economic & Environmental Policy, October 22, 2012; and Company Response to RCR-A-1, Attachment WP-JAF-S4AE-1.

Capacity Price Forecast Comparison

CEEEP Avoided Cost Assumptions: October 2012

Year	$/kW-year	CPI	$/MW-day
2011	$ 49.87	2.25	$ 136.63
2012	$ 49.11	2.28	$ 134.55
2013	$ 75.38	2.31	$ 206.52
2014	$ 70.93	2.36	$ 194.33
2015	$ 59.41	2.42	$ 162.77
2016	$ 60.64	2.47	$ 166.14
2017	$ 61.62	2.51	$ 168.82
2018	$ 63.10	2.57	$ 172.88
2019	$ 64.32	2.62	$ 176.22
2020	$ 65.55	2.67	$ 179.59
2021	$ 66.78	2.72	$ 182.96
2022	$ 68.25	2.78	$ 186.99
2023	$ 69.48	2.83	$ 190.36
2024	$ 70.95	2.89	$ 194.38
2025	$ 72.42	2.95	$ 198.41
2026	$ 73.90	3.01	$ 202.47
2027	$ 75.62	3.08	$ 207.18
2028	$ 77.33	3.15	$ 211.86
2029	$ 79.30	3.23	$ 217.26
2030	$ 81.02	3.30	$ 221.97
2031	$ 83.23	3.39	$ 228.03
2032	$ 85.44	3.48	$ 234.08
2033	$ 87.16	3.55	$ 238.79
2034	$ 89.12	3.63	$ 244.16
2035	$ 91.33	3.72	$ 250.22

CEEEP Avoided Cost Assumptions: June 2012

Year	$/kW-year	CPI	$/MW-day
2011	$ -	-	-
2012	$ -	-	-
2013	$ 75.38	-	$206.52
2014	$ 72.49	3.00	$198.60
2015	$ 74.02	3.00	$202.79
2016	$ 75.86	3.00	$207.84
2017	$ 77.40	3.00	$212.05
2018	$ 79.24	3.00	$217.10
2019	$ 81.09	3.00	$222.16
2020	$ 82.93	3.00	$227.21
2021	$ 84.77	3.00	$232.25
2022	$ 86.61	3.00	$237.29
2023	$ 88.46	3.00	$242.36
2024	$ 90.61	3.00	$248.25
2025	$ 92.76	3.00	$254.14
2026	$ 94.91	3.00	$260.03
2027	$ 97.06	3.00	$265.92
2028	$ 98.90	3.00	$270.96
2029	$ 101.36	3.00	$277.70
2030	$ 103.51	3.00	$283.59
2031	$ 106.93	3.00	$292.95
2032	$ 110.45	3.00	$302.61
2033	$ 114.10	3.00	$312.60
2034	$ 117.86	3.00	$322.92
2035	$ 121.75	3.00	$333.57

Source: Energy Efficiency Cost-Benefit Analysis Avoided Cost Assumptions, Rutgers: Center for Energy Economic & Environmental Policy, October 22, 2012; and Company Response to RCR-A-1, Attachment WP-JAF-S4AE-1

Revenue Credit Comparisons

REDACTED

Year	Company (million $)				Alternative (million $)			
	Energy	SREC	Capacity	Total	Energy	SREC	Capacity	Total
2013	$ -	$ -	$ -	$ -	$ -	[redacted]	$ -	[redacted]
2014	0.80	1.64	-	2.44	0.77		-	
2015	2.33	5.36	-	7.69	2.12		-	
2016	6.00	15.24	-	21.24	5.39		-	
2017	11.01	27.19	0.24	38.44	9.99		0.19	
2018	12.30	31.64	0.51	44.45	11.09		0.40	
2019	12.85	31.47	1.62	45.94	10.80		1.28	
2020	13.25	31.31	3.41	47.97	11.79		2.69	
2021	14.01	31.14	3.46	48.62	12.32		2.73	
2022	15.05	30.98	3.52	49.54	12.80		2.76	
2023	15.84	30.81	3.58	50.23	13.40		2.81	
2024	16.54	30.65	3.66	50.85	13.94		2.86	
2025	17.14	30.48	3.71	51.33	14.23		2.89	
2026	18.09	30.31	3.78	52.18	14.44		2.94	
2027	18.94	30.13	3.84	52.90	14.73		3.00	
2028	17.32	29.93	3.91	51.17	13.65		3.06	
2029	16.82	28.52	3.98	49.32	13.58		3.11	
2030	13.98	5.28	4.08	23.34	11.21		3.18	
2031	14.54	1.61	4.19	20.34	11.59		3.25	
2032	15.12	-	4.32	19.44	11.82		3.31	
2033	9.93	-	4.15	14.08	7.73		3.15	
2034	6.11	-	3.58	9.69	4.81		2.70	
2035	1.77	-	2.08	3.85	1.41		1.53	
2036	-	-	0.60	0.60	-		0.43	
TOTAL	$ 269.75	$ 423.70	$ 62.20	$ 755.64	$ 223.58		$ 48.27	
NPV	$ 72.64	$ 141.69	$ 12.99	$ 227.32	$ 61.82		$ 10.15	

Rate Impacts using Alternative Revenue Credits

REDACTED

Year	Rate Impacts (million $) Company Implied Residential	Commercial	Industrial	Total	Alternative Estimate Residential	Commercial	Industrial	Total
2013	$ (0.49)	$ (0.28)	$ (0.72)	$ (1.49)				
2014	(2.50)	(1.44)	(3.64)	(7.58)				
2015	(7.75)	(4.46)	(11.30)	(23.51)				
2016	(13.79)	(7.94)	(20.12)	(41.84)				
2017	(22.66)	(13.05)	(33.06)	(68.77)				
2018	(21.11)	(12.16)	(30.80)	(64.07)				
2019	(17.97)	(10.35)	(26.22)	(54.53)				
2020	(15.11)	(8.70)	(22.04)	(45.85)				
2021	(12.99)	(7.48)	(18.95)	(39.42)				
2022	(10.80)	(6.22)	(15.76)	(32.78)				
2023	(9.82)	(5.65)	(14.32)	(29.79)				
2024	(9.51)	(5.48)	(13.88)	(28.87)				
2025	(9.97)	(5.74)	(14.55)	(30.26)				
2026	(10.70)	(6.16)	(15.61)	(32.47)				
2027	(10.76)	(6.20)	(15.70)	(32.66)				
2028	(10.58)	(6.09)	(15.44)	(32.12)				
2029	(9.77)	(5.63)	(14.25)	(29.65)				
2030	(12.83)	(7.39)	(18.73)	(38.95)				
2031	(12.83)	(7.39)	(18.73)	(38.95)				
2032	(12.83)	(7.39)	(18.73)	(38.95)				
2033	(12.83)	(7.39)	(18.73)	(38.95)				
2034	(12.83)	(7.39)	(18.73)	(38.95)				
2035	(12.83)	(7.39)	(18.73)	(38.95)				
2036	(12.83)	(7.39)	(18.73)	(38.95)				
TOTAL	$ (286.12)	$ (164.75)	$ (417.45)	$ (868.32)				
NPV	$ (87.03)	$ (50.11)	$ (126.97)	$ (264.11)				

Rate Impacts using Alternative Revenue Credits

Year	Company Implied	Alternative Estimates[1] SREC=$0	SREC=$50	SREC=$100	SREC=$150	SREC=$200
2013	$ (1.49)	$ (1.49)	$ (1.49)	$ (1.49)	$ (1.49)	$ (1.49)
2014	(7.58)	(9.26)	(8.85)	(8.44)	(8.03)	(7.61)
2015	(23.51)	(29.13)	(27.78)	(26.43)	(25.07)	(23.72)
2016	(41.84)	(57.81)	(53.98)	(50.14)	(46.30)	(42.46)
2017	(68.77)	(97.21)	(90.37)	(83.53)	(76.69)	(69.85)
2018	(64.07)	(97.24)	(89.28)	(81.31)	(73.35)	(65.39)
2019	(54.53)	(88.61)	(80.69)	(72.76)	(64.84)	(56.91)
2020	(45.85)	(79.57)	(71.69)	(63.80)	(55.92)	(48.03)
2021	(39.42)	(73.23)	(65.39)	(57.54)	(49.70)	(41.85)
2022	(32.78)	(67.01)	(59.20)	(51.40)	(43.59)	(35.78)
2023	(29.79)	(64.07)	(56.31)	(48.54)	(40.77)	(33.00)
2024	(28.87)	(63.18)	(55.46)	(47.73)	(40.00)	(32.27)
2025	(30.26)	(64.74)	(57.05)	(49.36)	(41.67)	(33.98)
2026	(32.47)	(67.56)	(59.91)	(52.26)	(44.61)	(36.95)
2027	(32.66)	(68.17)	(60.55)	(52.94)	(45.33)	(37.71)
2028	(32.12)	(66.94)	(59.37)	(51.79)	(44.22)	(36.64)
2029	(29.65)	(62.57)	(55.34)	(48.11)	(40.88)	(33.65)
2030	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2031	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2032	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2033	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2034	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2035	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
2036	(38.95)	(42.10)	(41.86)	(41.61)	(41.36)	(41.12)
TOTAL	$ (868.32)	$ (1,352.53)	$ (1,245.70)	$ (1,138.85)	$ (1,032.00)	$ (925.15)
NPV	$ (264.11)	$ (419.47)	$ (383.91)	$ (348.35)	$ (312.78)	$ (277.22)

Note: [1]Rate impacts are estimated using alternative estimates for energy and capacity prices.

Net Economic Impacts using Alternative Revenue Credits

Year	Economic Impacts - Output (million $) Construction and O&M Direct	Indirect	Induced	Total	Rate Impact Direct	Indirect	Induced	Total	Total Direct	Indirect	Induced	Total
2013	$ 15.29	$ 5.73	$ 8.77	$ 29.79	$ (1.49)	$ (0.38)	$ (0.94)	$ (2.79)	$ 13.80	$ 5.35	$ 7.84	$ 27.00
2014	41.17	15.20	23.32	79.70	(8.90)	(2.28)	(5.61)	(16.69)	32.27	12.93	17.71	63.01
2015	84.12	30.96	47.51	162.59	(28.11)	(7.19)	(17.73)	(52.70)	56.01	23.77	29.78	109.88
2016	84.10	32.67	49.80	166.56	(50.82)	(13.00)	(32.05)	(95.29)	33.27	19.67	17.74	71.27
2017	33.56	17.39	25.68	76.64	(81.27)	(20.78)	(51.25)	(152.37)	(47.71)	(3.39)	(25.57)	(75.74)
2018	4.81	7.97	10.99	23.77	(80.47)	(20.58)	(50.75)	(150.87)	(75.66)	(12.61)	(39.76)	(127.11)
2019	4.94	8.18	11.28	24.40	(73.38)	(18.77)	(46.28)	(137.58)	(68.44)	(10.59)	(35.00)	(113.18)
2020	5.08	8.40	11.58	25.06	(65.11)	(16.65)	(41.06)	(122.08)	(60.04)	(8.26)	(29.48)	(97.02)
2021	5.21	8.62	11.89	25.73	(59.20)	(15.14)	(37.34)	(111.00)	(53.99)	(6.52)	(25.44)	(85.28)
2022	5.35	8.85	12.21	26.42	(53.40)	(13.66)	(33.68)	(100.12)	(48.05)	(4.80)	(21.47)	(73.71)
2023	6.66	9.49	13.16	29.30	(50.87)	(13.01)	(32.08)	(95.38)	(44.22)	(3.52)	(18.92)	(66.07)
2024	8.48	10.31	14.39	33.19	(50.37)	(12.88)	(31.77)	(94.45)	(41.89)	(2.57)	(17.38)	(61.26)
2025	12.50	11.90	16.80	41.20	(52.32)	(13.38)	(32.99)	(98.09)	(39.82)	(1.48)	(16.19)	(56.89)
2026	12.40	12.07	17.02	41.48	(55.51)	(14.20)	(35.00)	(104.07)	(43.10)	(2.13)	(17.99)	(62.58)
2027	8.70	11.00	15.32	35.02	(56.47)	(14.44)	(35.61)	(105.88)	(47.77)	(3.44)	(20.29)	(70.86)
2028	6.27	10.38	14.31	30.96	(55.60)	(14.22)	(35.06)	(104.24)	(49.32)	(3.84)	(20.75)	(73.28)
2029	6.37	10.54	14.54	31.46	(52.01)	(13.30)	(32.80)	(97.51)	(45.64)	(2.76)	(18.26)	(66.06)
2030	6.02	9.96	13.74	29.72	(41.75)	(10.68)	(26.33)	(78.29)	(35.73)	(0.72)	(12.59)	(48.56)
2031	6.19	10.23	14.11	30.53	(41.75)	(10.68)	(26.33)	(78.29)	(35.57)	(0.45)	(12.22)	(47.76)
2032	6.35	10.51	14.50	31.36	(41.75)	(10.68)	(26.33)	(78.29)	(35.40)	(0.17)	(11.84)	(46.93)
2033	6.26	10.36	14.29	30.91	(41.75)	(10.68)	(26.33)	(78.29)	(35.49)	(0.32)	(12.04)	(47.37)
2034	6.41	10.60	14.63	31.64	(41.75)	(10.68)	(26.33)	(78.29)	(35.34)	(0.07)	(11.70)	(46.64)
2035	6.34	10.49	14.47	31.30	(41.75)	(10.68)	(26.33)	(78.29)	(35.41)	(0.19)	(11.86)	(46.98)
2036	4.68	7.73	10.67	23.08	(41.75)	(10.68)	(26.33)	(78.29)	(37.08)	(2.94)	(15.66)	(55.21)
TOTAL	$ 387.27	$ 289.55	$ 414.99	$ 1,091.80	$ (1,167.59)	$ (298.61)	$ (736.33)	$ (2,189.13)	$ (780.32)	$ (9.06)	$ (321.35)	$ (1,097.32)
NPV	$ 207.45	$ 110.44	$ 162.68	$ 480.56	$ (355.42)	$ (90.90)	$ (224.14)	$ (666.38)	$ (147.97)	$ 19.54	$ (61.46)	$ (185.81)

Net Economic Impacts using Alternative Revenue Credits

Year	Economic Impacts - Employment (number of jobs)											
	Construction and O&M				Rate Impact				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	163	31	52	246	(15)	(1)	(4)	(20)	148	30	48	226
2014	439	81	139	659	(88)	(5)	(25)	(118)	351	76	114	541
2015	897	166	283	1,345	(278)	(15)	(80)	(373)	619	150	203	972
2016	898	175	296	1,369	(503)	(28)	(144)	(675)	395	147	152	695
2017	362	93	153	608	(804)	(44)	(231)	(1,079)	(442)	49	(78)	(471)
2018	57	43	65	165	(796)	(44)	(229)	(1,068)	(739)	(1)	(163)	(903)
2019	58	44	67	169	(726)	(40)	(208)	(974)	(668)	4	(141)	(805)
2020	60	45	69	174	(644)	(36)	(185)	(864)	(584)	10	(116)	(691)
2021	61	46	71	178	(586)	(32)	(168)	(786)	(524)	14	(97)	(608)
2022	63	48	73	183	(528)	(29)	(152)	(709)	(465)	18	(79)	(526)
2023	77	51	78	206	(503)	(28)	(144)	(675)	(426)	23	(66)	(469)
2024	97	55	86	238	(498)	(27)	(143)	(669)	(402)	28	(57)	(431)
2025	140	64	100	303	(517)	(29)	(149)	(695)	(378)	35	(49)	(391)
2026	139	65	101	305	(549)	(30)	(158)	(737)	(410)	34	(56)	(432)
2027	99	59	91	250	(559)	(31)	(160)	(750)	(459)	28	(69)	(500)
2028	74	56	85	215	(550)	(30)	(158)	(738)	(476)	25	(73)	(523)
2029	75	57	87	218	(514)	(28)	(148)	(690)	(439)	28	(61)	(472)
2030	71	53	82	206	(413)	(23)	(119)	(554)	(342)	31	(37)	(348)
2031	73	55	84	212	(413)	(23)	(119)	(554)	(340)	32	(35)	(343)
2032	75	56	86	218	(413)	(23)	(119)	(554)	(338)	34	(32)	(337)
2033	74	56	85	214	(413)	(23)	(119)	(554)	(339)	33	(33)	(340)
2034	75	57	87	220	(413)	(23)	(119)	(554)	(337)	34	(31)	(335)
2035	75	56	86	217	(413)	(23)	(119)	(554)	(338)	34	(32)	(337)
2036	55	42	64	160	(413)	(23)	(119)	(554)	(358)	19	(55)	(394)
TOTAL	4,256	1,552	2,471	8,279	(11,548)	(637)	(3,316)	(15,501)	(7,292)	915	(845)	(7,222)

Net Economic Impacts using Alternative Revenue Credits

Year	Economic Impacts - Labor Income (million $) Construction and O&M				Rate Impact				Total			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2013	$ 10.37	$ 1.83	$ 2.61	$ 14.83	$ (0.71)	$ (0.05)	$ (0.28)	$ (1.04)	$ 9.66	$ 1.77	$ 2.34	$ 13.78
2014	27.92	4.85	6.95	39.75	(4.26)	(0.32)	(1.65)	(6.24)	23.66	4.52	5.30	33.52
2015	57.04	9.87	14.16	81.14	(13.47)	(1.03)	(5.20)	(19.70)	43.57	8.85	8.96	61.44
2016	57.12	10.42	14.79	82.45	(24.35)	(1.86)	(9.40)	(35.61)	32.77	8.56	5.39	46.84
2017	23.05	5.55	7.50	36.29	(38.94)	(2.97)	(15.04)	(56.95)	(15.90)	2.58	(7.53)	(20.66)
2018	3.62	2.55	3.09	9.45	(38.56)	(2.94)	(14.89)	(56.38)	(34.94)	(0.39)	(11.80)	(46.93)
2019	3.71	2.61	3.17	9.71	(35.16)	(2.68)	(13.58)	(51.42)	(31.45)	(0.07)	(10.41)	(41.71)
2020	3.81	2.68	3.25	9.97	(31.20)	(2.38)	(12.05)	(45.62)	(27.39)	0.31	(8.79)	(35.66)
2021	3.92	2.75	3.34	10.23	(28.37)	(2.16)	(10.95)	(41.48)	(24.45)	0.59	(7.61)	(31.25)
2022	4.02	2.83	3.43	10.51	(25.59)	(1.95)	(9.88)	(37.42)	(21.57)	0.88	(6.45)	(26.91)
2023	4.91	3.03	3.71	11.89	(24.38)	(1.86)	(9.41)	(35.65)	(19.46)	1.17	(5.70)	(23.76)
2024	6.16	3.29	4.07	13.77	(24.14)	(1.84)	(9.32)	(35.30)	(17.98)	1.46	(5.25)	(21.53)
2025	8.89	3.80	4.79	17.72	(25.07)	(1.91)	(9.68)	(36.66)	(16.18)	1.89	(4.89)	(18.94)
2026	8.84	3.85	4.84	17.79	(26.60)	(2.03)	(10.27)	(38.89)	(17.76)	1.83	(5.42)	(21.11)
2027	6.34	3.51	4.33	14.44	(27.06)	(2.06)	(10.45)	(39.57)	(20.72)	1.45	(6.12)	(25.13)
2028	4.71	3.32	4.02	12.32	(26.64)	(2.03)	(10.29)	(38.96)	(21.93)	1.29	(6.27)	(26.64)
2029	4.79	3.37	4.08	12.51	(24.92)	(1.90)	(9.62)	(36.44)	(20.13)	1.47	(5.54)	(23.93)
2030	4.52	3.18	3.86	11.82	(20.01)	(1.52)	(7.72)	(29.26)	(15.48)	1.66	(3.86)	(17.43)
2031	4.65	3.27	3.96	12.14	(20.01)	(1.52)	(7.72)	(29.26)	(15.36)	1.75	(3.76)	(17.11)
2032	4.77	3.36	4.07	12.47	(20.01)	(1.52)	(7.72)	(29.26)	(15.23)	1.83	(3.65)	(16.78)
2033	4.71	3.31	4.01	12.29	(20.01)	(1.52)	(7.72)	(29.26)	(15.30)	1.79	(3.71)	(16.96)
2034	4.82	3.39	4.11	12.59	(20.01)	(1.52)	(7.72)	(29.26)	(15.19)	1.86	(3.62)	(16.67)
2035	4.77	3.35	4.06	12.45	(20.01)	(1.52)	(7.72)	(29.26)	(15.24)	1.83	(3.66)	(16.81)
2036	3.51	2.47	3.00	9.18	(20.01)	(1.52)	(7.72)	(29.26)	(16.50)	0.95	(4.73)	(20.08)
TOTAL	$ 270.97	$ 92.45	$ 119.22	$ 487.69	$ (559.49)	$ (42.63)	$ (216.01)	$ (818.12)	$ (288.51)	$ 49.83	$ (96.79)	$ (330.43)
NPV	$ 142.61	$ 35.25	$ 47.45	$ 226.56	$ (170.31)	$ (12.98)	$ (65.75)	$ (249.04)	$ (27.70)	$ 22.27	$ (18.30)	$ (22.48)

Table of Schedules

Original Solar 4 All
Proposed vs. Actual Installed Solar Capacity

		EY 2010	EY 2011	EY 2012	EY 2013	Program to Date
			MWs			
Segment 1A	Proposed	--	15	10	--	**25**
	Actual	--	12.4	0.7	0.7	**13.8**
Segment 1B	Proposed	2	3.1	4.9	--	**10**
	Actual	--	1.8	15.7	1.1	**18.6**
Segment 1C	Proposed	2.5	2.5	--	--	**5**
	Actual	--	5.4	--	--	**5.4**
Segment 2	Proposed	7.6	10.4	13.3	8.7	**40**
	Actual	5.6	14.5	10.4	4.6	**35.1**
Total	Proposed	**12.1**	**31**	**28.2**	**8.7**	**80**
	Actual	**5.6**	**34.1**	**26.8**	**6.4**	**72.9**

Segment 1A: Centralized Solar Developed on PSE&G owned sites.
Segment 1B: Centralized Solar Developed on third-party owned sites.
Segment 1C: Centralized Solar Developed on Urban Enterprise Zones ("UEZ").
Segment 2: Pole-attached Solar PV.

Note: EY 2012 and EY 2013 proposed to actual reflect a 10 MW transfer from Segment 1A to Segment 1B approved by the Board on April 27, 2011. See Company Response to RCR-P-6.
Source: Company Response to RCR-P-4 and Order Approving Stipulation, BPU Docket EO09020125.

Original Solar 4 All
Proposed vs. Actual Cost

		EY 2010	EY 2011	EY 2012	EY 2013	Program to Date
				$000		
Segment 1A	Proposed	--	$95,400	$63,100	--	**$158,500**
	Actual	$5,923	$70,026	$4,816	$3,465	**$84,230**
Segment 1B	Proposed	$13,100	$19,700	$31,200	$200	**$64,200**
	Actual	$1,099	$28,873	$44,679	$1,016,154	**$1,090,805**
Segment 1C	Proposed	$16,800	$16,600	$100	--	**$33,500**
	Actual	$3,059	$30,640	($3,452)	$12	**$30,259**
Segment 2	Proposed	$49,300	$67,200	$85,700	$56,200	**$258,400**
	Actual	$43,529	$100,201	$65,708	$29,228	**$238,665**
Total	Proposed	**$79,200**	**$198,900**	**$180,100**	**$56,400**	**$514,600**
	Actual	**$53,610**	**$229,740**	**$11,751**	**$33,720**	**$328,821**

Segment 1A: Centralized Solar Developed on PSE&G owned sites.
Segment 1B: Centralized Solar Developed on third-party owned sites.
Segment 1C: Centralized Solar Developed on Urban Enterprise Zones ("UEZ").
Segment 2: Pole-attached Solar PV.

Note: EY 2012 and EY 2013 proposed to actual reflect a 10 MW transfer from Segment 1A to Segment 1B approved by the Board on April 27, 2011. See Company Response to RCR-P-6.
Source: Company Response to RCR-P-5 and Order Approving Stipulation, BPU Docket EO09020125.