STATE OF NEW JERSEY

BEFORE THE 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

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

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FILED: FEBRUARY 4, 2013

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REBUTTAL TESTIMONY OF

DAVID E. DISMUKES, PH.D.

ON BEHALF OF THE

NEW JERSEY DIVISION OF RATE COUNSEL

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. ARE YOU THE SAME PERSON WHO FILED DIRECT TESTIMONY IN THIS DOCKET ON JANUARY 18, 2013?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my testimony is to respond to the direct testimonies of Katie Bolcar Rever of the Solar Energy Industries Association ("SEIA"), William E. S. Kaufman of Wattlots, LLC ("Wattlots"), and Thomas P. Lynch of KDC Solar LLC ("KDC Solar"). Each of these witnesses have addressed various aspects, and offered differing recommendations, associated with the Solar For All Extension ("SFAE") proposal submitted by Public Service Electric & Gas ("PSE&G" or "the Company").

Q. HAVE YOU CHANGED OR MODIFIED THE OPINIONS OR RECOMMENDATIONS IN YOUR PREVIOUSLY-FILED DIRECT TESTIMONY AS A RESULT OF THE EVIDENCE PROVIDED BY THESE INTERVENOR WITNESSES?

A. No, my opinions and recommendations remain the same.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. My testimony is organized into the following sections:

- Section II: Response to SEIA's SFAE Proposals
- Section III: Response to Wattlots' Jobs Impact Claim Associated with SFAE
- Section IV: Response to KDC Solar

II. RESPONSE TO SEIA'S SFAE PROPOSAL

Q. PLEASE SUMMARIZE SEIA'S POSITION REGARDING THE PROPOSED SOLAR 4 ALL EXTENSION ("S4AE").

A. SEIA expresses two primary concerns with the Company's SFAE proposal. The first concern is associated with the negative impact that the SFAE proposal will have on a currently over-supplied Solar Renewable Energy Certificate ("SREC") market and the second is associated with the competitive impacts the SFAE may have on individual solar market segments that are included in the proposal.[1]

Q. DO YOU AGREE WITH SEIA'S PRIMARY CONCERNS?

A. Yes. However, SEIA's proposed SFAE solutions and program modifications are likely to lead to outcomes far worse than the ones I outlined in my direct testimony. SEIA's proposals (1) fail to consider, or even be concerned with, the substantial negative rate impacts these policy proposals would create; (2) fail to recognize the "big picture" policy implications of approving even a "SEIA-modified" SFAE; and (3) will not solve any of the SFAE program design problems that SEIA readily, and repeatedly, recognizes.

Q CAN YOU SUMMARIZE SEIA'S PRIMARY RECOMMENDATIONS?

A Yes. SEIA recommends:

[1] Direct Testimony of Katie Bolcar Rever, 2: 10-13.

1. A reduction in the size and scope of the SFAE proposal;
2. That the Board consider policy goals and SREC market conditions in defining how any scaled-down SFAE program is implemented.
3. The SFAE program should have a hard capacity-based program cap and not an investment-dollar based cap as currently proposed.
4. The SFAE should retire all program SRECs, thereby eliminating SREC sales revenues as a source of financial support for SFAE program costs.[2]

Q. DOES SEIA HAVE ANY ALTERNATIVE RECOMMENDATIONS?

A. Yes. SEIA recommends that if the Board rejects its primary recommendation to retire SFAE-generated SRECs, that it instead adopt some other market governance mechanism that would restrict the number of SRECs that would enter the New Jersey market. SEIA offers two different market management options. The first is the use of a SREC-supply-based "trigger" mechanism that would condition the sale of SFAE program SRECs in the market. The second is the use of some form of staggered investment profile to phase-in SFAE investments.[3]

Q. LET'S DISCUSS SEIA'S FIRST PRIMARY RECOMMENDATION. DO YOU BELIEVE THAT LIMITING THE SIZE AND SCOPE OF THE SFAE PROGRAM IS AN ADEQUATE SOLUTION?

A No. While a reduction in the size and number of market segments included in the SFAE would be an improvement to the current program, it is a somewhat arbitrary recommendation, and fails to address the fundamental shortcoming in the Company's proposal: the SFAE is not needed. SEIA goes to great lengths to explain the current New Jersey SREC market and its

[2] Direct Testimony of Katie Bolcar Rever, 19: 3-35.
[3] Direct Testimony of Katie Bolcar Rever, 19: 3-35.

current over-supply situation.[4] SEIA, while not providing a direct forecast,[5] provides additional evidence that the SREC market is anticipated to be over-supplied for the next several years. Limiting the size and scope of the SREC program will still result in a relatively significant amount of incremental SRECs in the market.

Q. DID SEIA PROVIDE ANY ESTIMATES OF THE MARGINAL SREC IMPACT THE SFAE PROGRAM IS LIKELY TO CREATE GIVEN ITS CURRENT DESIGN?

A. Yes. SEIA provided calculations (attached as KBR-2) examining the marginal contribution the SFAE program is likely to have on the market. SEIA estimates that the SFAE would impact the annual incremental SREC market by 8 percent in EY15 (i.e., Energy Year 2015), 24 percent in EY16, 28 percent in EY17 and 5 percent in EY18.[6] SEIA is correct in noting that the analysis presented by the Company, examining the extent to which the SFAE will impact the market, is flawed. SEIA is correct that the appropriate number to examine is the one associated with the marginal, or incremental, SREC impact the SFAE has on the market, not the impact on the cumulative total number of SRECs in the market. This same type of analysis, however, supports a rejection of SEIA's proposal to reduce the scale and scope of the SFAE by eliminating the parking lot and warehouse segments of the SFAE. Even with these two components removed, the SFAE will still have a non-trivial impact on SREC market volumes. For instance, even using SEIA's proposal, the SFAE will have an incremental contribution of 3 percent in EY15, 14 percent in EY16, 26 percent in EY17 and 5 percent in EY18. The most effective way of solving this continued SREC market impact, therefore, is to reject the Company's SFAE proposal.

[4] Direct Testimony of Katie Bolcar Rever, 6:24 to 9:11.
[5] Direct Testimony of Katie Bolcar Rever, 9:8-9.
[6] Direct Testimony of Katie Bolcar Rever, 5:29-34; and KBR-2.

Q. DO YOU AGREE WITH SEIA'S RECOMMENDATION THAT THE BOARD SHOULD CONSIDER ITS OVERALL POLICY GOALS IN PROMOTING UTILITY BASED SOLAR PROJECTS IN THE LANDFILL MARKET SEGMENT?

A. I agree with the premise of this position that correctly notes the Board already has a number of future investigations pending that are designed to explore a wide range of policy options and incentives for landfill solar installations. I noted in my direct testimony that the development of a program associated with promoting any landfill-based solar installation, in particular, was premature. The Board has recently opened, and not yet completed the proceedings required by the Solar Energy Act ("SEA", P.L. 2012, c. 24).[7] I disagree with SEIA, however, that the SFAE landfill market segment should be approved on some kind of conditional basis and somehow run, or be phased in, concurrent with the Board's pending landfill incentives proceeding. I recommend that SFAE should be rejected in its entirety and that any new utility-based proposals for landfill solar installation incentives should be submitted only after these proceedings are completed.

Q. DO YOU AGREE WITH SEIA'S RECOMMENDATIONS THAT THE SFAE SHOULD BE CAPPED AT A CAPACITY RATHER THAN TOTAL INVESTMENT AMOUNT?

A. No since such a recommendation could encourage capital inefficiency by promoting the highest unit cost solar investment for a utility-based project. Further, this recommendation, much like the one proposing to restrict the size and scope of the Company's proposal, will do nothing to solve the SREC over-supply problem that currently exists in New Jersey SREC

[7] See Direct Testimony of David E. Dismukes, 23:6-20 to 24:1-19, and I/M/O Implementation of L. 2012 C. 24, the Solar Act of 2012, BPU Dkt. Nos. EO12090832V, et seq. (Order, January 24, 2013).

markets. If anything, it will add additional SRECs in the market, further drive down prices, and potentially lead to additional SREC price instability.

Q. DO YOU AGREE WITH SEIA'S PROPOSAL TO RETIRE SFAE-GENERATED SRECS?

A. No. SEIA's recommendation to retire SFAE-generated SRECs, and require full program funding through rates is particularly ill-advised.[8] This proposal suffers from at least four shortcomings:

(1) The proposal represents a de facto increase in the solar RPS requirement contrary to the level established in the SEA.[9]

(2) SEIA's recommendations are not well-defined and could result in cross-subsidies being paid by ratepayers outside the Company's service territory.

(3) The proposal sets a bad public policy precedent.

(4) SEIA's proposal will result in large negative rate impacts for PSE&G's customers that, in turn, will further exacerbate the negative net economic benefits associated with the Company's SFAE proposal.

Q. CAN YOU EXPLAIN HOW SEIA'S PROPOSAL WILL RESULT IN A DE FACTO INCREASE IN THE NEW JERSEY SOLAR RPS?

A. Yes. The solar RPS was established to define New Jersey's minimum solar energy generation commitment. As I noted in my direct testimony, this requirement was recently re-defined by the Solar Energy Act ("SEA") in July 2012. This legislation increased the solar RPS requirement to correct a perceived over-development problem in New Jersey solar energy

[8] KDC Solar makes a similar alternative recommendation and the Mid-Atlantic Solar Energy Industries Association ("MSEIA") supports a similar position as part of its primary recommendation. See the Direct Testimonies of Mr. Thomas P. Lynch, 3: 14-15 and 5:1-8; as well as Lyle K. Rawlings, response to question 5 and question 7.

[9] See P.L. 2012, c. 24 §38 subsection d(3), N.J.S.A. 48:3-87(d)..

markets. As I noted in my direct testimony, the SEA includes a trade-off that increases future solar generation requirements, yet, at the same time, reduces Solar Alternative Compliance Prices ("SACPs") in order to force and constrain future upward SREC price movements. SEIA's proposal, however, would unwind the SEA's solar energy policy efforts by asking the Board to substitute its judgment for that reflected in the SEA. Retiring SRECs, as opposed to selling those SRECs, and using the proceeds of the SREC sales as a credit against program costs, effectively increases the solar generation that PSE&G's ratepayers are required to support. Under SEIA's proposal, PSE&G's ratepayers will be required to fully support both the increased solar generation requirements in the SEA, as well as the new solar generation amounts included in the Company's SFAE proposal. It would appear, from a public policy perspective, that if the SEA had been intended to increase future ratepayer solar generation requirements, it would have included these changes. Unilaterally changing the solar generation requirement, through SEIA's proposal to retire SRECs, upsets the stakeholder balancing reflected in the SEA and as such, should be rejected.

Q. HOW WOULD SEIA'S PROPOSALS RESULT IN A CROSS SUBSIDY FROM RATEPAYERS NOT SERVED BY PSE&G?

A. SEIA outlines a number of regulatory support mechanisms from which SFAE costs could be recovered. These regulatory support mechanisms include not only base distribution rates, but other non-bypassable distribution level charges like the Societal Benefits Charge ("SBC").[10] SEIA's recommendations appear to suggest that other charges, like the SBC, should be considered as a means to recover SFAE investments. Some components of the SBC are, however, collected on a statewide basis from all New Jersey electric ratepayers and/or gas ratepayers, on a non-bypassable basis, not just from PSE&G's ratepayers. Using the SBC as a

[10] Direct Testimony of Katie Bolcar Rever, 11:24-33.

vehicle to recover PSE&G-specific solar energy costs could, in effect, force other, non-PSE&G, ratepayers to subsidize the Company's solar energy investments, as well as the rate of return the Company proposes to earn on these investments. The Board should reject SEIA's proposals to use any state-wide assessed charge like the SBC to recover any utility-based solar energy costs since doing so leads to a cross-subsidy of one utility's ratepayers by a set of other in-state ratepayers.

Q. HOW WOULD SEIA'S PROPOSALS RESULT IN A BAD PUBLIC POLICY PRECEDENT?

A. Allowing a statewide cross-subsidy to support utility-specific solar energy programs clearly sets a bad public policy precedent. Adopting a proposal of this nature could be used as a precedent for justifying the cross-subsidization of not only a variety of additional solar energy programs, but of a variety of other types of well-intentioned investments and costs like utility-specific reliability investments or utility-specific storm recovery costs. Public utility regulation, as a general matter, tends to avoid cross-subsidies across utilities and rarely, if ever, forces one utility's ratepayers to subsidize another utility's ratepayers without some strong public good rationale. Further, SEIA's proposal to retire SRECs, and use statewide-based rates as a means for recovering utility-based investments, opens the door for other electric distribution companies to propose similar earnings-improving utility-based programs. SEIA's proposals would do nothing to improve what it characterizes as utility "SREC price insensitivity," and, if anything, could make this price insensitivity problem even worse. This is why SEIA misses what I earlier described as the "big picture" policy implications of its proposals.

Q. DID SEIA ESTIMATE THE RATE IMPACTS ASSOCIATED WITH ITS SREC-RETIREMENT PROPOSAL?

A No, SEIA did not provide a rate impact analysis and explained that such an analysis was "beyond the scope of [its] testimony."[11]

Q. HAVE YOU ESTIMATED THE RATE IMPACTS OF SEIA'S SREC RETIREMENT PROPOSAL?

A. Yes. That rate impact was provided in my direct testimony in Schedule DED-24. This schedule estimates the rate impacts associated with various SREC revenue credits assuming a range of longer-run SREC prices starting at $0 per SREC and increasing in $50 per SREC increments up to a maximum of $200 per SREC. The rate impacts associated with a $0 per SREC price would apply to SEIA's proposal to retire all SFAE generated SRECs. Schedule DED-24 shows that retiring these SRECs would increase PSE&G rates by an additional $484.21 million, or 55.76 percent, through 2036, when compared to the Company's projected rate impact based on its implied S4AE SREC values. The Company's implied SREC values already result in a rate impact of some $868.3 million.[12] So, all told, SEIA's proposed rate impact would result in a total PSE&G rate increase of some $1.35 billion or by $419.5 million on a net-present value ("NPV") basis.

Q. HAVE YOU ESTIMATED THE NET ECONOMIC BENEFITS ASSOCIATED WITH SEIA'S PROPOSED MODIFICATIONS TO THE COMPANY'S SFAE?

A. Yes and those are provided in Schedule DED-R-1 (Attachment A). If SEIA's proposal to retire SFAE-generated SRECs is accepted, New Jersey could see a decline of $1.4 billion (or $305.9 million NPV) in economic output, a loss of 9,677 job-years of employment, and a loss of $460 million (or $67.4 million NPV) in total labor income as a result of the earlier described PSE&G rate increase. The results of this analysis show that the estimated rate impact to

[11] Direct Testimony of Katie Bolcar Rever, 12:14.
[12] Direct Testimony of David E. Dismukes, Schedule DED-24.

PSE&G's customers, representing the "cost" of SEIA's proposal far exceeds the estimated "benefits" associated with the solar energy jobs that arise from the construction and operation-oriented activities that may result from SFAE solar development.

Q. WILL ANY OF SEIA'S ALTERNATIVE RECOMMENDATIONS MAKE THE SFAE MORE ACCEPTABLE?

A. No. SEIA provides two alternative SFAE proposals should the Board reject its primary recommendation to force the retirement of all SFAE-generated SRECs. These proposals define two different options that would require the Board to micro-manage the number of SFAE-generated SRECs that make their way into the market. Under the first option, SEIA recommends the Board establish some kind of "trigger mechanism" that would allow the Company to sell certain levels of SFAE-generated SRECs to the markets. The trigger is based upon the current market SREC supply and would presumably only be "pulled" once market as in an under-supply situation (i.e., SREC sales would occur only in a defined under-supply period). In times of market over-supply, SRECs would be retired much like SEIA's primary recommendation. In times of market under-supply, SFAE-generated SRECs could be sold to the market and revenues from these sales would be allowed to offset program costs. Under the second option, SEIA recommends the Board establish a staggered SFAE investment plan based upon a projected SREC market supply outlook (forecast). The Board would incrementally approve SFAE investments only in instances where SRECs were forecast to be in undersupply. An oversupplied SREC market forecast would result in the Board cutting back, or eliminating any incremental SFAE investments. These investments and forecasts would presumably be updated annually, although SEIA has no specific plan for how its recommendations would work. Instead,

SEIA recommends the Board direct parties to come together to work out the details at some date in the future.

Q. DO YOU BELIEVE THIS SEIA PROPOSAL WOULD LEAD TO A MORE ACCEPTABLE SFAE?

A. No. The Board should reject this proposal since it is entirely inconsistent with the Board's goals of making the solar energy market more competitive and independent of ratepayer financial support. SEIA's proposal effectively puts the Board in the role of a solar market "micro-manager" attempting to fine tune either SREC sales or SFAE investments to attain a particular type of SREC market outcome. Such a proposal is being inconsistent with Board policy and is also bound to lead to unanticipated and likely counterproductive outcomes. Micro-managing SREC market outcomes will likely lead to solar investment uncertainty which, in turn will likely lead to SREC supply volatility, since market participants may never know how, or when, the Board will pull either type of market management "trigger." Even if the timing and extent of either of these proposed market intervention mechanisms is known, few participants will know with certainty how the Board's intervention will interact with other market forces and outcomes. If adopted, either of SEIA's proposals would result in more, not less, regulatory uncertainty, something the Board has worked hard at reducing for many years. SEIA's market intervention proposal is not a workable nor productive solution for the SFAE, is contrary to the Board's competitive solar generation market goals, and should be rejected.

III. <u>RESPONSE TO WATTLOTS' JOBS IMPACT CLAIM ASSOCIATED WITH S4AE</u>

Q. PLEASE SUMMARIZE WATTLOTS' POSITION REGARDING THE PROPOSED SFAE.

A. Wattlots is in favor of the Board approving the proposed SFAE and notes that solar technologic advances cannot occur without the assistance of a utility program such as PSE&G's proposed SFAE. Wattlots also states that it "estimates that hundreds of additional jobs would be created if SFAE is approved and the Power Arbor is utilized by PSE&G for its parking lot segment."[13]

Q. DO YOU AGREE WITH WATTLOTS' ASSERTION THAT SOLAR EMPLOYMENT OPPORTUNITIES WILL BE CREATED BY THE COMPANY'S SFAE PROGRAM?

A Yes, but only in part since this assertion is one-sided and fails to recognize the considerable losses in employment (as measured in job-years) that could result from the negative rate impacts created by this very expensive utility investment program. I presented estimates of these substantial negative net economic benefits in Schedule DED-25. This analysis shows that the Company's SFAE proposal is likely to lead to an employment loss of some 7,222 job-years over the life of program and reduce overall labor income by some $22.48 million (NPV).[14] While Wattlots and its employees may profit from the expansion of the ill-defined and unnecessary SFAE proposal, other employees in other sectors of the New Jersey economy will likely see their profits, wages, and employment opportunities decrease.

IV. RESPONSE TO KDC SOLAR

Q. PLEASE SUMMARIZE KDC SOLAR'S POSITION REGARDING THE PROPOSED SFAE.

[13] Direct Testimony of William E. S. Kaufman, 4:13-15.
[14] Direct Testimony of David E. Dismukes, 47:3-14.

A. KDC Solar recommends the Board reject the Company's proposed SFAE since the SREC market is already oversupplied and anticipated to remain in oversupply in the near future.[15] KDC Solar believes that by approving the SFAE, the Board will be allowing the Company to subsidize its entry into an otherwise competitive market.[16] According to KDC Solar, PSE&G'[s solar market entry under such conditions will have an adverse impact on market competition, a result the Board specifically stated it wished to avoid in approving the original Solar 4 All program.[17]

Q. HAS KDC SOLAR PROVIDED ANY SREC MARKET ANALYSES SUPPORTING ITS CONCLUSIONS THAT THE MARKET IS LIKELY OVERSUPPLIED?

A. Yes. KDC Solar provided an SREC supply forecast based upon data compiled by the Office of Clean Energy ("OCE").[18] This forecast estimates that the current SREC market, without the inclusion of the proposed SFAE, will likely be oversupplied through EY2017. This forecast, as well as the information included in my direct testimony, and the market outlook provided by SEIA in its direct testimony, support the conclusion that the New Jersey SREC market is likely adequately, if not over-supplied well into the future.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY FILED ON FEBRUARY 4, 2013?

A. Yes, however, I reserve the right to supplement my testimony based upon the late-filed discovery responses of the MSEIA, many of which were incomplete with an admission that

[15] Direct Testimony of Thomas P. Lynch, 4:17-19.
[16] Direct Testimony of Thomas P. Lynch, 3:6-10.
[17] Direct Testimony of Thomas P. Lynch, 4:8-14.
[18] See KDC Solar's response to RCR-P-KDC-1.

future information associated with the request would be provided to parties at a later date. Therefore, I reserve the right to supplement this rebuttal testimony if, and when, this additional material becomes available from MSEIA.

ATTACHMENT A
REBUTTAL SCHEDULES

Net Economic Impacts using SREC Price of $0

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	(9.26)	(2.37)	(5.84)	(17.37)	31.91	12.83	17.48	62.33
2015	84.12	30.96	47.51	162.59	(29.13)	(7.45)	(18.37)	(54.62)	54.99	23.51	29.14	107.97
2016	84.10	32.67	49.80	166.56	(57.81)	(14.79)	(36.46)	(108.39)	26.28	17.88	13.34	58.17
2017	33.56	17.39	25.68	76.64	(97.21)	(24.86)	(61.31)	(182.26)	(63.65)	(7.47)	(35.62)	(105.62)
2018	4.81	7.97	10.99	23.77	(97.24)	(24.87)	(61.32)	(182.32)	(92.43)	(16.90)	(50.34)	(158.55)
2019	4.94	8.18	11.28	24.40	(88.61)	(22.66)	(55.88)	(166.14)	(83.67)	(14.48)	(44.60)	(141.73)
2020	5.08	8.40	11.58	25.06	(79.57)	(20.35)	(50.18)	(149.19)	(74.50)	(11.95)	(38.60)	(124.14)
2021	5.21	8.62	11.89	25.73	(73.23)	(18.73)	(46.18)	(137.30)	(68.02)	(10.11)	(34.29)	(111.58)
2022	5.35	8.85	12.21	26.42	(67.01)	(17.14)	(42.26)	(125.64)	(61.66)	(8.28)	(30.05)	(99.22)
2023	6.66	9.49	13.16	29.30	(64.07)	(16.39)	(40.41)	(120.13)	(57.42)	(6.90)	(27.25)	(90.83)
2024	8.48	10.31	14.39	33.19	(63.18)	(16.16)	(39.85)	(118.46)	(54.70)	(5.85)	(25.46)	(85.27)
2025	12.50	11.90	16.80	41.20	(64.74)	(16.56)	(40.83)	(121.39)	(52.24)	(4.66)	(24.03)	(80.19)
2026	12.40	12.07	17.02	41.48	(67.56)	(17.28)	(42.61)	(126.67)	(55.16)	(5.21)	(25.59)	(85.18)
2027	8.70	11.00	15.32	35.02	(68.17)	(17.43)	(42.99)	(127.81)	(59.47)	(6.44)	(27.67)	(92.79)
2028	6.27	10.38	14.31	30.96	(66.94)	(17.12)	(42.22)	(125.51)	(60.67)	(6.74)	(27.90)	(94.55)
2029	6.37	10.54	14.54	31.46	(62.57)	(16.00)	(39.46)	(117.32)	(56.20)	(5.46)	(24.92)	(85.86)
2030	6.02	9.96	13.74	29.72	(42.10)	(10.77)	(26.55)	(78.94)	(36.08)	(0.81)	(12.81)	(49.22)
2031	6.19	10.23	14.11	30.53	(42.10)	(10.77)	(26.55)	(78.94)	(35.92)	(0.54)	(12.44)	(48.41)
2032	6.35	10.51	14.50	31.36	(42.10)	(10.77)	(26.55)	(78.94)	(35.75)	(0.26)	(12.06)	(47.58)
2033	6.26	10.36	14.29	30.91	(42.10)	(10.77)	(26.55)	(78.94)	(35.84)	(0.41)	(12.26)	(48.03)
2034	6.41	10.60	14.63	31.64	(42.10)	(10.77)	(26.55)	(78.94)	(35.69)	(0.16)	(11.92)	(47.30)
2035	6.34	10.49	14.47	31.30	(42.10)	(10.77)	(26.55)	(78.94)	(35.76)	(0.28)	(12.08)	(47.64)
2036	4.68	7.73	10.67	23.08	(42.10)	(10.77)	(26.55)	(78.94)	(37.43)	(3.03)	(15.89)	(55.86)
TOTAL	$ 387.27	$ 289.55	$ 414.99	$ 1,091.80	$(1,352.53)	$ (345.91)	$ (852.97)	$(2,535.89)	$ (965.26)	$ (56.36)	$ (437.98)	$(1,444.09)
NPV	$ 207.45	$ 110.44	$ 162.68	$ 480.56	$ (419.47)	$ (107.28)	$ (264.54)	$ (786.47)	$ (212.02)	$ 3.16	$ (101.86)	$ (305.90)

Net Economic Impacts using SREC Price of $0

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	(92)	(5)	(26)	(123)	347	76	113	536
2015	897	166	283	1,345	(288)	(16)	(83)	(387)	609	150	200	959
2016	898	175	296	1,369	(572)	(32)	(164)	(768)	326	143	132	602
2017	362	93	153	608	(961)	(53)	(276)	(1,291)	(599)	40	(123)	(682)
2018	57	43	65	165	(962)	(53)	(276)	(1,291)	(905)	(10)	(211)	(1126)
2019	58	44	67	169	(876)	(48)	(252)	(1176)	(818)	(4)	(184)	(1007)
2020	60	45	69	174	(787)	(43)	(226)	(1056)	(727)	2	(157)	(883)
2021	61	46	71	178	(724)	(40)	(208)	(972)	(663)	6	(137)	(794)
2022	63	48	73	183	(663)	(37)	(190)	(890)	(600)	11	(118)	(706)
2023	77	51	78	206	(634)	(35)	(182)	(851)	(557)	16	(104)	(644)
2024	97	55	86	238	(625)	(34)	(179)	(839)	(528)	21	(94)	(601)
2025	140	64	100	303	(640)	(35)	(184)	(860)	(501)	28	(84)	(556)
2026	139	65	101	305	(668)	(37)	(192)	(897)	(529)	28	(91)	(592)
2027	99	59	91	250	(674)	(37)	(194)	(905)	(575)	22	(102)	(655)
2028	74	56	85	215	(662)	(37)	(190)	(889)	(588)	19	(105)	(674)
2029	75	57	87	218	(619)	(34)	(178)	(831)	(544)	22	(91)	(612)
2030	71	53	82	206	(416)	(23)	(120)	(559)	(346)	31	(38)	(353)
2031	73	55	84	212	(416)	(23)	(120)	(559)	(344)	32	(36)	(347)
2032	75	56	86	218	(416)	(23)	(120)	(559)	(342)	33	(33)	(341)
2033	74	56	85	214	(416)	(23)	(120)	(559)	(343)	33	(34)	(345)
2034	75	57	87	220	(416)	(23)	(120)	(559)	(341)	34	(32)	(339)
2035	75	56	86	217	(416)	(23)	(120)	(559)	(342)	33	(33)	(342)
2036	55	42	64	160	(416)	(23)	(120)	(559)	(361)	19	(56)	(399)
TOTAL	4,256	1,552	2,471	8,279	(13,377)	(738)	(3,841)	(17,956)	(9,121)	814	(1370)	(9,677)

Net Economic Impacts using SREC Price of $0

Economic Impacts - Labor Income (million $)												
	Construction and O&M				Rate Impact				Total			
Year	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	(4.44)	(0.34)	(1.71)	(6.49)	23.48	4.51	5.24	33.26
2015	57.04	9.87	14.16	81.14	(13.96)	(1.06)	(5.39)	(20.41)	43.08	8.81	8.77	60.72
2016	57.12	10.42	14.79	82.45	(27.70)	(2.11)	(10.70)	(40.51)	29.42	8.31	4.10	41.94
2017	23.05	5.55	7.50	36.29	(46.58)	(3.55)	(17.98)	(68.11)	(23.54)	2.00	(10.48)	(31.83)
2018	3.62	2.55	3.09	9.45	(46.60)	(3.55)	(17.99)	(68.14)	(42.98)	(1.00)	(14.90)	(58.68)
2019	3.71	2.61	3.17	9.71	(42.46)	(3.23)	(16.39)	(62.09)	(38.75)	(0.62)	(13.22)	(52.38)
2020	3.81	2.68	3.25	9.97	(38.13)	(2.90)	(14.72)	(55.76)	(34.32)	(0.22)	(11.47)	(45.79)
2021	3.92	2.75	3.34	10.23	(35.09)	(2.67)	(13.55)	(51.31)	(31.18)	0.08	(10.21)	(41.08)
2022	4.02	2.83	3.43	10.51	(32.11)	(2.45)	(12.40)	(46.95)	(28.09)	0.38	(8.97)	(36.45)
2023	4.91	3.03	3.71	11.89	(30.70)	(2.34)	(11.85)	(44.90)	(25.79)	0.69	(8.15)	(33.01)
2024	6.16	3.29	4.07	13.77	(30.28)	(2.31)	(11.69)	(44.27)	(24.11)	0.99	(7.62)	(30.51)
2025	8.89	3.80	4.79	17.72	(31.02)	(2.36)	(11.98)	(45.36)	(22.13)	1.44	(7.19)	(27.64)
2026	8.84	3.85	4.84	17.79	(32.37)	(2.47)	(12.50)	(47.34)	(23.54)	1.39	(7.65)	(29.55)
2027	6.34	3.51	4.33	14.44	(32.66)	(2.49)	(12.61)	(47.76)	(26.32)	1.03	(8.28)	(33.32)
2028	4.71	3.32	4.02	12.32	(32.08)	(2.44)	(12.38)	(46.91)	(27.36)	0.87	(8.36)	(34.59)
2029	4.79	3.37	4.08	12.51	(29.98)	(2.28)	(11.58)	(43.84)	(25.20)	1.08	(7.49)	(31.33)
2030	4.52	3.18	3.86	11.82	(20.18)	(1.54)	(7.79)	(29.50)	(15.65)	1.65	(3.93)	(17.68)
2031	4.65	3.27	3.96	12.14	(20.18)	(1.54)	(7.79)	(29.50)	(15.53)	1.73	(3.82)	(17.36)
2032	4.77	3.36	4.07	12.47	(20.18)	(1.54)	(7.79)	(29.50)	(15.40)	1.82	(3.72)	(17.03)
2033	4.71	3.31	4.01	12.29	(20.18)	(1.54)	(7.79)	(29.50)	(15.47)	1.77	(3.78)	(17.21)
2034	4.82	3.39	4.11	12.59	(20.18)	(1.54)	(7.79)	(29.50)	(15.36)	1.85	(3.68)	(16.92)
2035	4.77	3.35	4.06	12.45	(20.18)	(1.54)	(7.79)	(29.50)	(15.41)	1.82	(3.72)	(17.05)
2036	3.51	2.47	3.00	9.18	(20.18)	(1.54)	(7.79)	(29.50)	(16.66)	0.93	(4.79)	(20.32)
TOTAL	$ 270.97	$ 92.45	$ 119.22	$ 487.69	$ (648.11)	$ (49.38)	$ (250.22)	$ (947.71)	$ (377.14)	$ 43.08	$ (131.00)	$ (460.02)
NPV	$ 142.61	$ 35.25	$ 47.45	$ 226.56	$ (201.00)	$ (15.31)	$ (77.60)	$ (293.92)	$ (58.40)	$ 19.93	$ (30.15)	$ (67.36)