State of New Jersey
Board of Public Utilities
Two Gateway Center
Newark, NJ 07102

Michael Winka, Director
Office of Clean Energy

Tel. # (609) 777-3312
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MEMORANDUM

To: Mike Winka, Director Office of Clean Energy

From: Scott Hunter, Renewable Energy Program Administrator

Re: Straw Proposal for ACP and SACP Levels for RY 2008 in NJ RPS

Date: October 17, 2006

Executive Summary

This memo recommends, as a straw proposal for the ACP advisory committee's consideration, keeping the SACP and ACP rates at existing levels for Reporting Year 2008 which begins on June 1, 2007 and ends on May 31, 2008.

Recent market experience indicates growth in installed generating capacity sufficient to meet the demand for SRECs and RECs in Reporting Year 2008. In each of the last two RPS reporting years, regulated entities demonstrated little difficulty in securing an adequate supply of certificates to meet their RPS requirements.

The SACP and ACP levels for Reporting Year 2008 should be announced by the Board with enough lead time in advance of the February 2007 BGS Auction to allow participants to factor RPS compliance costs into their bid prices. Recommending SACP and ACP rates for the Board's consideration at the November 9th agenda meeting will allow BGS auction participants sufficient notice.

Background/Procedural History

The Renewable Portfolio Standard (RPS) rules at N.J.A.C. 14:8-2 implement provisions of the New Jersey Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49, et seq. (EDECA). The RPS rules require retail electricity supplier/providers to include at least a minimum percentage of qualified renewable energy in the electricity it sells each reporting year. Supplier/providers may submit Renewable Energy Certificates, or RECs, as defined in the rules, to meet the percentages required each year. A REC represents the attributes of one megawatt-hour of generation from an eligible facility. The requirements and conditions for the creation and use of RECs in the RPS are defined by the rules.

RECs are procured by supplier/providers from solar facility owners, brokers and aggregators which include some solar installers. The price of an REC used to satisfy the RPS requirements is a function of its perceived and relative scarcity. Factors that affect the price of a REC include;

- the supply available from eligible facilities,
- the demand established by the NJ RPS mandate,
- other demand from uses such as other state compliance markets plus voluntary markets, and
- the level established for the alternative compliance payment.

Alternative Compliance Payment provisions to the RPS were recommended by Renewable Energy Task Force in a report submitted to the Governor on April 24, 2003. The ACP provisions were proposed as amendments to the RPS rules on October 6, 2003 and were incorporated into the RPS rules via Board Order signed on December 18, 2003. This Board Order established the ACP and SACP levels at $50 per MWH and $300 per MWH respectively. The revised RPS rules with the ACP provisions became effective on April 5, 2004. The Board extended the ACP and SACP at their existing levels on December 23, 2004.

As introduced in the 2003 Board Order establishing the ACP and SACP, this tool "provide(s) a 'back-stop' mechanism that protects suppliers, as well as consumers, from the cost implications of excessive market risk. The ACP and SACP set an upper limit for the cost of RPS compliance; remove the risk of unknown financial penalities for any renewable energy shortfalls; provide protection against the possibility of market power exertion and unforeseen scarcity of renewable energy and REC shortages; and gives suppliers some flexibility in complying with RPS requirements."

The ACP advisory committee in 2003 recommended an ACP of $50 per MWh and an SACP of $300 per MWh based upon modeling of the Class I renewable energy and solar markets. Factors and assumptions considered in the ACP analysis included the expected:

- impacts on REC markets,
- development of new renewable energy generation,
- supplier's behavior in meeting the RPS,

- supplier compliance costs, and
- the BGS auction

The alternative compliance payment effectively sets a ceiling to the price the owner of a REC may demand. The rules allow supplier/providers to choose to submit alternative compliance payments (ACPs) or solar alternative compliance payments (SACPs) in lieu of supplying the percentage of renewable energy required. It is commonly accepted that since supplier/providers may choose to submit ACPs in lieu of purchasing RECs they will do so whenever REC prices approach the level of the ACP. Since the acquisition of RECs involve some transaction costs, REC price levels are expected to remain below the ACP levels by at least the costs required to purchase a REC.

The proceeds from the sale of RECs provide renewable energy facility owners a source of financial return for their investment. REC income provided to the facility owner is a performance-based incentive since it is related to the amount energy produced. The other common sources of financial incentive to invest in renewable energy facilities include:

- an electric bill credit for customer-generated electricity through a net metering tariff,
- capacity-based rebate such as the CORE rebate program,
- grant and/or loans such as through the REAP program,
- the federal Investment Tax Credit, and
- Modified Accelerated Cost Recovery or depreciation expensing for federal tax purposes.

One of the challenges to setting the ACP level is to anticipate the level needed to motivate the installation of adequate capacity to balance the supply of RECs with the RPS percentage requirements. This task is challenging since the incentives are not evenly applied to every participant or rate class while widespread adoption of renewable energy facilities across the state and across rate classes is a desired outcome. It is even more challenging when one or more of the other sources of incentive have changed or are expected to change. For example, the CORE rebate program funded through the Societal Benefit Charge has changed significantly since 2004. The early investors in solar technology received as much as 70% of their initial investment in the form of a rebate. The rebate has been subsequently reduced and now provides as much as 50% of the initial investment with the same SACP levels. And roughly concurrent with latest rebate reductions, the federal Investment Tax Credits have been improved.

The task before the ACP advisory committee as found in the RPS rules at N.J.A.C. 14:8-2.10 (b) is:

> to provide recommendations to the Board regarding the appropriate cost of ACPs, as well as other characteristics of their use. The Board shall consider the advisory committee's recommendations and shall, through Board order, set

prices for ACPs and SACPs. At a minimum, the price of an ACP or an SACP shall be higher than the estimated competitive market cost of the following:

1. The cost of meeting the requirement through purchase of a REC or a solar REC; or
2. The cost of meeting the requirement through generating the required renewable energy.

Major Technical Issues or Items of Interest

The ACP levels are important in the renewable energy market since they are a key determinant in the value of RECs. The ACP and SACP levels establish ceiling prices for RECs and SRECs, respectively. The actual price paid for a REC is a function of such variables as the available supply of RECs which is largely determined by installed renewable energy capacity and the demand for RECs which can be bolstered by other state compliance markets in the region and voluntary markets.

The Office of Clean Energy recommends that the conditions and assumptions that supported establishing different prices for ACP and SACP and set those prices at $50 and $300 per MWH respectively in 2003 remain consistent today. The markets for RECs produced by Class I renewable energy and SRECs produced by solar photovoltaic facilities as exhibited by their prices have remained steady and below the ACP and SACP levels. The outlook for the REC and SREC markets for reporting year 2007 and 2008 is expected to remain in relative balance between supply and demand. The installed capacity of each type of eligible generating resource are expected to continue growing at roughly the same rate of increase as our RPS percentages.

The Office of Clean Energy estimated that the RPS percentage of 0.017% for reporting year 2006 would require 7 MW installed by June 1, 2005 if no other installed capacity came online. By June 1, 2005, approximately 4.8 MW of solar PV was installed in NJ. However, over 2.5 MW of installed capacity alone were added in the next quarter. By year's end, the installed capacity of solar PV exceeded 9 MW with another five months remaining in RPS reporting year 2006. The preliminary results from the compliance reports submitted by RPS regulated entities on September 1, 2006 demonstrated that 10,723 SRECs were retired for an estimated obligation of 10,449 SRECs with 163 SACPs paid. This compares with 3316 SRECs retired and 2640 SACPs paid in the previous reporting year 2005. Reporting Year 2005 was the first year of the solar RPS percentage requirement and the first operation year of the SREC trading platform.

The Office of Clean Energy estimates that the RPS percentage of 0.0393% for reporting year 2007 would require 24 MW installed by June 1, 2006 if no other installed capacity came online. 18 MW of eligible solar PV capacity had been installed in NJ by June 1, 2006. By September 30, installed capacity had grown to 24 MW of solar PV capacity. The Office of Clean Energy expects no disruptions in the current pace of installation activity which is primarily driven by the CORE rebate program which has over 570 applications for rebate approved for over 27 MW of potential capacity. Historic installation rates suggest that approximately 18 MW of this capacity will be installed

within the next year. The Office of Clean Energy expects at least another year of balance between supply and demand for SRECs and continued stability in SREC prices used to meet reporting year 2007 requirements.

The Office of Clean Energy estimates that the RPS percentage of 0.0817% for reporting year 2008 would require 51 MW installed by June 1, 2007 if no other installed capacity came online. From the above analysis, approximately 42 MW of solar PV capacity is expected by June 1, 2007. As of September 1, 2006, the CORE rebate program currently had over 890 applications in queue awaiting rebate commitment approvals for over 36 MW of solar capacity. It is not anticipated that the entire list of queued applications will receive rebate commitments in 2007 but may receive commitments in 2008 depending upon installation completion rates and NJCEP budget availability.

The CORE rebate constraints are not expected to impact the capacity available to meet the RPS percentage requirements until reporting year 2009. The RPS requirements for solar PV of 0.16% is expected to require approximately 100 MW of solar PV capacity by June 1, 2008 assuming no further capacity is installed after this date. Staff have estimated that the CORE budget can accommodate approximately 83 MW of solar PV capacity leaving a potential shortfall of 17 MW needed in the June to December 2008 timeframe. It is this anticipated shortfall that has prompted staff to discuss the development of a pilot project to demonstrate the ability to motivate the investment in and installation of solar PV without the use of a CORE rebate. Staff believe that an adequate response to this pilot will require increasing the level of SREC payments available to investors in the 17 MW of capacity required.

However, no increase in the SACP at this time is required to meet the near term RPS goals. In fact, increasing the SACP may limit the Board's ability to increase the SACP in the future when it is truly needed. To the extent that SACP levels establish the upper limit for the cost of RPS compliance, raising the rate while the market is in balance is not recommended. The potential for over-subsidizing the solar marketplace in New Jersey is a very real concern that could lead to an exacerbated problem of SREC oversupply with some solar facility owners unable to market their SRECs.

Rate Impacts

In December 2003, staff with the input of the ACP Advisory Committee estimated the rate impacts of the ACP and SACP recommendations for the ACP set at $50.00/MWh for non-solar renewable energy required by the RPS in 2004, and $300.00/MWh for solar renewable energy required in that year as:

- if a supplier relies on the $50.00/MWh ACP for non-solar renewable energy to meet the RPS requirements and passes this cost through to customers, the impact on the average residential household would be approximately $2.75 per year or a rate impact of $0.00003/kWh.

- if a supplier relies on the $300.00/MWh SACP for solar renewable energy to meet the RPS requirements and passes this cost through to customers, the impact on the average residential household would be approximately $ 0.59 per year or a rate impact of $0.00014.

- The estimates are the maximum costs or impacts if all suppliers relied on the ACP and SACP to meet all their RPS requirements. Based on the current availability of Class I renewable energy within the PJM region, and the current prices of RECs in regions that rely on such systems, the suppliers' compliance costs should be significantly less, because it is likely that suppliers, as intended, will rely on the ACP and SACP to meet unexpected circumstances, and not as a routine regulatory compliance strategy.

Staff recommends that the $50.00/MWh ACP and the $300.00/MWh SACP remain reasonable amounts that balance the need to support renewable energy generation and protect the State's ratepayers and electricity consumers. Furthermore, Staff believes that these amounts would not have a negative impact on the 2007 basic generation service (BGS) auction.

Customers Affected

Ratepayers of regulated electricity distribution utilities and customers of third-party electricity suppliers

Environmental Concerns

The payment of ACP and SACPs reduces or defers the environmental benefits promised by the RPS and delivered when RECs and SRECs are used for compliance.

Smart Growth Impact

NA

Legislative Interest

NA

News

The recommendation to keep ACP and SACP levels constant will provide market participants an indication that the Board will continue to actively balance compliance costs with the costs for developing a market for clean energy technologies in New Jersey.

Prepared by Scott Hunter

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PSEG
Energy Resources & Trade LLC

October 23, 2006

Michael Winka
Director, Office of Clean Energy
New Jersey Board of Public Utilities
Two Gateway Center
Newark, NJ 07102

RE: PSEG Energy Resources & Trade LLC's ("PSEG ER&T") comments to ACP and SACP Straw proposal memorandum dated October 17, 2006.

Dear Mr. Winka:

PSEG ER&T appreciates the opportunity to comment on the referenced straw proposal. PSEG ER&T agrees with the Office of Clean Energy that the current ACP and SACP levels of $50 and $300 respectively, should remain unchanged for Reporting Year 2008, which begins June 1, 2007 and ends May 31, 2008. In light of the upcoming BGS Auction, which will set prices for one third of New Jersey's load for the Reporting Years 2008, 2009, and 2010, PSEG ER&T recommends taking the opportunity now to set the ACP and SACP for Reporting Years 2009 and 2010 as well. We believe this will enable BGS suppliers bidding in the auction to limit the risk premium they apply to the renewable component of their bids, and to potentially reduce costs to consumers.

BGS suppliers face many pricing challenges in the 2007 auction period. They range from significant changes to PJM market fundamentals, to growing environmental requirements. Any area where the Board can provide a measure of certainty, such as setting ACP and SACP pricing for the entire auction period, we think is in the best interest of New Jersey consumers. If the Board is unable to set prices at this time, then we recommend that any future changes to the ACP and SACP not be applied to tranches won by suppliers in the 2007 auction. This "grandfathering" treatment would be consistent with how the Board treated the last major change made to the New Jersey RPS, when the solar requirement was introduced, and tranches won in the 2003 auction were exempted. Again, the less regulatory uncertainty there is for suppliers to evaluate, the better the prices will be for New Jersey consumers.

Thank you for considering our input to this important process, and we look forward to working closely with the Board on this issue.

Sincerely,

Joseph P. Roenbeck

Joseph P. Roenbeck

October 26, 2006

Mike Winka
Director- Office of Clean Energy
New Jersey Board of Public Utilities
Trenton NJ

Dear Mike:

As requested, I am providing comments to the ACP Straw Proposal contained in Scott Hunter's memo to you of October 17, 2006. I am responding on behalf of PV Now with additional input from various persons and companies within the New Jersey solar industry. In the interest of not repeating points made by Tom Leyden in his response, I want you to know that I agree with his comments and intend in this letter to reiterate key points while perhaps providing an additional perspective on the issue of setting the SACP. It appears that the ACP for the non-solar portion of the RPS is less controversial than the SACP. The comments below pertain exclusively to the SACP although the general principles discussed therein also would apply to non-solar generation and the non-solar ACP.

1. The solar ACP must increase significantly when CORE rebates are eliminated. The industry has worked with the OCE to develop a series of models showing how this transition from a rebate/REC hybrid structure (today's paradigm) to a REC only model can be accomplished. In all cases, the solar ACP must go up so the RPS can be successful.

   The role of the ACP Committee should be to recommend levels for both non solar and solar ACPs that are consistent with the intent of the RPS rules to set ACP values that recognize the costs of providing renewable generation. When CORE rebates are eliminated, the cost recovery mechanism provided by SRECs must increase if minimal economic return criteria are to be achieved. The ACP level should be set high enough so trading in RECs is encouraged while setting a reasonable maximum for the LSEs' worst case planning. The OCE has expressed a desire to eliminate CORE rebates by 2009. The SACP for Energy Years where projects are built without rebates must be established with this in mind. BGS suppliers should be notified that future SACP levels will be considerably higher than today's $300.

2. There is a disagreement about the status of installed solar generation in the State and the amount of additional generation that will be coming on line in the next two years. In the interest of developing good policy, we should try to come to agreement on the data. Short of that, we will be developing program recommendations based on different assumptions. We should sit down and review each other's data A.S.A.P. to agree on a starting point.

   This is more than an academic point. Our data shows that there will be a solar generation shortfall in Energy Year 2008- highlighting the critical nature of introducing a REC only pilot program immediately- and of establishing a SACP for the pilot that is significantly higher than the existing, rebate supported SACP. There seems to be agreement between Board Staff and the solar industry that a REC only pilot is needed sometime between now and Energy Year 2009. A key outcome of the discussions suggested above should be to agree on when this pilot should be started if the goal is to match solar generation and RPS requirements.

3. We believe that the EDECA legislation, the RPS rules as adopted by the BPU, as well as continued policy pronouncements by the Board and the Governor's Office, envision the RPS not only as a mechanism to develop solar generation to meet RPS requirements, but also as a means to develop new jobs, companies and industries that will promote economic development in the State. Only with the continued growth of the solar industry can the benefits highlighted in the CEEEP report on the cost effectiveness of the RPS be realized.

In order to maintain the momentum of the past few years (due in no small part to the work of the OCE and the Board), companies must be able to sell new projects and open new markets. Even if the short term goals of the RPS for 2007-2008 do not require additional projects today (based on the review envisioned in Point 2 above), the sales lead time and construction of new projects require that the BPU announce a REC only pilot in the next few months so the requisite solar capacity will realistically be available when needed. The time between program announcement and project completion has not been adequately factored into the Straw analysis. We suggest that the OCE examine the experience in California when they introduced a performance based incentive pilot. The California pilot, while different than New Jersey in many ways, did show that transitioning developers from a rebate based incentive program to one relying on payments over time, is not a simple or quick process.

Based on this experience and based on the data contained in Tom Leyden's memo, we believe a pilot should be started immediately, both to meet RPS requirements and to help achieve the long-term economic development goals of the overall program. We believe a 17 MW REC only pilot should be started by January 2007, with the LSE obligation to purchase these no-rebate RECs to commence in Energy Year 2008.[1] In order to give this pilot a realistic chance of success, there must be a corresponding, no-rebate SACP established for Energy Year 2008.

By establishing a no-rebate SREC class now, and limiting the higher SACP to that small percentage of total SRECs in the market, we have addressed the Staff concern that "To the extent that SACP levels establish the upper limit for the cost of RPS compliance, raising the rate while the market is in balance is not recommended."[2] In fact, establishing the pilot in 2008 instead of 2009 will likely lead to lower SREC prices for rebate based SRECs since the LSE requirement for those SRECs will be reduced from nearly 61,000 to 51,000. This dynamic will impact the overall cost of the pilot to the ratepayers- lowering rebate based SREC prices while adding a lesser percentage (15%) of more expensive no-rebate SRECs.

4. We support the establishment of a five year SACP schedule that will provide the market (both LSEs and solar developers) needed information for rational planning. The proposed schedule shown below includes no-rebate SREC requirements for 2008 (pilot program) as well as no-rebate and rebate based SRECs for the years 2008-2012. These SACP levels would be set by the BPU with an ongoing process to maintain the five year schedule by convening the ACP Committee every two years to set the SACP levels for Years 4 and 5. For example, in October 2008, the ACP Committee would be asked to recommend SACP levels for Energy Years 2013 and 2014.

   We suggest that the ACP Committee review the economic model that has been developed by the solar industry to account for cost recovery and a modest 6.4% IRR for solar projects without CORE rebates. The model indicates that a 2008 no-rebate SREC will trade in the neighborhood of $700. We believe a reasonable SACP for those no-rebate SRECs would be $850 in 2008.

   For new and legacy projects that have received CORE rebates, we agree with the recommendation of Scott Hunter that the level for those SRECs remain at $300 for 2008.

   We believe that the market should ultimately set the price of RECs. If project developers find financing and equipment that allows them to build at lower costs, they will be able to offer less expensive no-rebate SRECs to the market. However, we believe that the ACP committee has the responsibility under the RPS rules to create an ACP that will be priced above the cost of providing solar generation projects. The purpose of the ACP is to create a maximum default

[1] Although the first year pilot is 17 MW, we anticipate that timing of installations will be such that the 17 MW will produce approximately 9300 MWh. during Energy Year 2008.
[2] S. Hunter memo p.5.

price that will limit ultimate exposure on the part of the LSE's while providing a spread between likely REC prices and the ACP so as to promote trading in RECs rather than use of the ACP to achieve RPS compliance. Our recommended $850 SACP for 2008 is consistent both with the spirit and the letter of the RPS rules.

The following schedule addresses the interest of prospective BGS bidders to understand their potential worst-case costs should they be making ACP payments. It also shows the percentage of the SREC requirement that suppliers can expect to purchase of the existing SREC type as well as the percentage of new, no-rebate SRECs that they will be required to retire. This is consistent with the RPS rules which establish a total SREC requirement for each LSE based on their percentage of load served.

Energy Year	Total SREC Requirement	No-rebate SRECs (new)	No-rebate SRECs (total)	No rebate SREC %	No-rebate SACP value	SRECs (with rebates)	SREC %[3]	Rebated SACP value	
2008	60,948	9236[2]	9236	15	850	51,712	85	300	
2009	120,640	38,987	48,223	40	800	72,417	60	285	
2010	168,000	35,947	84,170	50	750	83,830	50	270	
2011	234,000	66,000	150,170	64	700	83,830	36	255	
2012	306,000	72,000	222,170	73	675	83,830	27	245	

In conclusion, we believe that the continued growth of the solar industry will contribute to New Jersey's achievement of several important goals, including providing clean, distributed generation to the citizens of the State and the development of a vibrant industry contributing jobs and economic growth. In order to achieve these goals, a comprehensive solar program must be developed, including the establishment of ACP levels that will support the investment required to make solar projects happen. We look forward to working with the ACP committee and Board Staff to address this key piece of the puzzle.

Sincerely,
Jim Torpey
Madison Energy Consultants
On behalf of PV Now

cc. S. Hunter
L. Miller
ACP Committee

[3] Assumes that rebates go away in 2009 energy year and SRECs from rebated systems remain at 83,830 thru 2012

MEMO

To: Mike Winka
Director Office of Clean Energy
CC: Lance Miller
ACP committee
From: Tom Leyden, PowerLight VP and MSEIA President
Date: October 23, 2006

RE: **Follow-up to RPS Straw Proposal on ACP dated October 17, 2006**

This memo is in response the memo authored by Scott Hunter of the Clean Energy Office submitted to the ACP committee on October 17, 2006, and presented as a "straw proposal" for ACP board action. In consultation with solar industry members and other stakeholders, I would like to submit the following for consideration. I first list a summary of the issues and our position, and then further explanation and detail.

Summary

The straw proposal suggests that raising the ACP is not necessary to meet the RPS goals, and that in fact raising the ACP would be harmful to market balance. There is strong evidence that these conclusions cannot be supported, since there is a clear gap emerging in RPS compliance for the 07/08 and 08/09 reporting years. Furthermore, the straw proposal focuses exclusively on short term RPS goals, when program objectives clearly define the need for development of a robust industry capable of sustaining exceptional growth consistently through 2021. Our position is that the straw proposal would result in an unacceptable contraction of the industry, resulting in both a shortfall in short term SREC supply and material damage to industry infrastructure that will make the long term growth goals unachievable. Immediate launch of a properly incentivized RPS-only trial is necessary to avoid these impacts and ensure minimum-cost compliance with program goals.

Our response to the straw proposal may be summarized as follows; please see the following sections for further detail:

1. **Accurate Information**: Key conclusions within the straw proposal are inconsistent with available data. The straw proposal estimates that the market is in balance for the next two years, and that the modest 17MW shortfall in 08/09 requires no immediate action. Using objectively verifiable data, it is clear that a significant SREC shortfall will emerge in 07/08, a more substantial shortfall (than 17MW) is likely for 08/09, and that immediate action is necessary through the REC-only trial to avoid those consequences. Using accurate information is critical to making rational decisions that will have short-term and material effect on solar deployment, and we offer an alternative analysis that is based on known production baselines.

2. **Smooth Market Transition**: The EDECA legislation that underpins the Clean Energy Program mandates orderly development of the market leading to a robust industry that can sustain long-term growth. Building an industry infrastructure requires consistent opportunities year-by-year, not the stop-and-start conditions that are currently hurting the industry, and which will only get worse if the conclusions of the straw proposal are followed – i.e., a significant period of no new project sales. It is new sales activity that fuels growth, not just the installation of previously sold projects which is the primary market activity today. Throttling new sales now will close businesses that will be dearly needed to meet 2008 goals and beyond, and more importantly, would ensure the withdrawal of the capital investment resources needed for long term success. These consequences are already evident in the industry today, and immediate launch of the REC-only trial is critical to avoiding further erosion of the existing base.

3. **Project Sales Cycles For RPS Goals**: The straw proposal focuses exclusively on the short term (two year) RPS goals, and doesn't consider the impact of constrained market growth on meeting RPS goals for the subsequent years. The industry is scaling back already, which will significantly degrade its ability to meet the demanding RPS growth in the years following 2008. The resulting SREC shortfall will increase costs to the rate payer (less supply means higher SREC prices). Furthermore, even ensuring adequate SREC supply for 2007 and 2008 requires industry project development starting NOW. There is usually a three to twelve month sales cycle in developing projects whether they are residential or commercial, and then a six to nine month installation period. The straw proposal concludes that since reporting year 2006 SREC requirements were met by the solar industry (good news which means lower SREC costs), no immediate action is required. We categorically reject this conclusion since, as noted in the analysis herein, significant shortfall is projected for both 07/08 and 08/09, and project development timelines mandate that new sales efforts begin immediately so that new capacity can be installed in time.

4. **RPS-Pilot Recommendations**: We support the formation of a pilot program as has been discussed over the last three months, where a higher ACP is created to compensate for the loss of the rebate (or in the case of residential, the dramatically lower but continuing rebate). We recommend an SCAP for these (non-rebated) trial-RECs of $850/SREC, which results in project economics somewhat weaker than they are today (when rebates are used). The SACP must be set at a high enough level to provide adequate incentive for LSEs to enter into long-term SREC agreements making project development bankable and viable. A quantitative model for estimating the needed SACP value is presented based on a customer view of project economics, along with other recommendations needed for the trial to result in the new project development needed to avoid SREC shortfall.

5. **Future BPU Board Flexibility and "Over-subsidizing"**: On page 5 of the memo, it states "increasing the SACP may limit the Board's ability to increase the SACP in the future….. and raising the rate (increases) the potential for over-subsidizing the solar marketplace." In response it should be noted that, 1) increasing the SACP immediately is the right thing to do per above, and erring on the side of a high SACP is appropriate since lowering it over the years is easier for the Board than raising it, and because raising it later provides a powerful ***disincentive*** for entering into long-term contracts, i.e., SREC buyers will wait for higher SREC prices due to future higher SACP levels rather than entering into long-term contracts. Long-term contracts are key to necessary long-term investor and bank project financing. 2) An oversupply of SRECs characterized as "over-subsidizing the marketplace" would actually lower costs to rate payers since more supply means lower SREC values (supply vs. demand). Policy makers should be concerned only with a gross oversupply and not worry about minor corrections which the market does very efficiently. Data in this memo indicates a market in relative balance over the next couple of reporting years, so this concern is not warranted.

1. Accurate Information To Properly Assess Strategy

The straw proposal projects capacity deployment and SREC production to assess market balance. The resulting analysis is not representative of actual market conditions, and leads to erroneous conclusions about market balance. Market balance assessments are at the very heart of setting SACP levels, and we offer a revised quantitative baseline for use in SACP decision making:

- **Production Estimates**: The straw typically *assumes* PV system productivity of approximately 1.2 annual kWhrs/watt-DC (peak, STC) installed. Given the last three years of actual production history known by the industry, confirmed by estimates provided by PV WATTS, the actual production factor in NJ is an average 1.01 annual kWhrs-AC/watt-DC. This necessary change in the analysis has a large and profound impact on the capacity calculations, since it results in the need for approximately 119MW installed to meet 08/09 RPS goals (~120,000 MWhs), not the 90MW conventionally discussed. The actual gap between projected capacity and RPS goals is therefore much larger than implied by the straw analysis, especially in the 07/08 and 08/09 years, as the gap is magnified as the RPS goals increase. Please refer to the summary in Appendix A on derivation of this system production factor.

- **Changes In Conditions**: The straw correctly notes that the industry fulfilled the RPS goals for the last two energy years, but then projects that based on that trend the market will remain in balance for the next two years *despite the fact that project economics have changed dramatically*. The conditions that led to successful market balance for the last two years are no longer in place, and the growth rate of the industry has contracted significantly. This will be especially true given the transition to an REC-only environment, and the straw proposal (if it were implemented) that the SACP for un-rebated projects remain at $300. Project economics in that scenario are profoundly different than those that led to the successful fulfillment of the 05 and 06 RPS goals, and projecting continued market balance under those dramatically worse economic conditions is not justified. As outlined more fully below, we recommend projections of SREC supply (and market balance) over the next two years based on actual projections of capacity and SREC production.

- **Projection Baseline**: Looking more specifically at the numbers, the straw notes that 4.8MW of PV were installed by June 1, 2005, and 13.2MW of new capacity were installed leading to an installed base of 18MW of PV by June 1, 2006. Based on further estimates by Mr. Hunter, and assuming that every dollar in the CORE budget is spent, the OCE estimates an additional 24MW installed through June 1, 2007, and another 41MW in the following two years based on rebated projects. Assuming this 41MW is scheduled approximately in proportion to the 07 and 08 budgets, this would result in the following capacity deployment from the CORE program (i.e. non-trial) projects:

Energy Year	Installed As Of June 1 BOY	Installed In-Yr (through May 31)
2005/2006	**4.8 MW**	**13.2 MW**
2006/2007	**18.0 MW**	**24.0 MW**
2007/2008	**42.0 MW**	**18.4 MW**
2008/2009	**60.4 MW**	**22.6 MW**
2009/2010	**83.0 MW**	**0**

We used these OCE numbers as the basis for all the following market balance projections, although in some cases we consider them somewhat optimistic. This profile assumes, for example, that all of the CORE budget is spent efficiently. At the current time, a significant fraction of the funds are stranded in the public segment where there is weak demand. Nonetheless, we used the OCE projections as the basis for the following analysis.

- **Trial Has No Impact On 06/07 Compliance**: Looking in further detail at the 06/07 energy year, we know that 18MW were installed on June 1, with a goal for 29,003 SRECs produced for the year. Given the OCE's own projection of 24MW deployed throughout the year, we concur that sufficient capacity is already under development to fully supply (with perhaps only slight over supply) the 06/07 RPS requirement. It is

important to note that any RPS trial capacity brought on-line in the first part of 2007 will have negligible impact on 06/07 SREC compliance since it is so late in the generating year, AND since the proposal is that the trial-SRECs only begin generation on June 1, 2007. Although the market is approximately in-balance for the current year, the straw assertion that capacity from the RPS trial would disrupt short term (06/07) market balance is not supportable.

- **Ensuring Short Term Supply**: Following the immediate (06/07) energy year, significant SREC shortfall begins to emerge. This short term gap begins in 07/08, and becomes much larger in 08/09, indicating the need for immediate stimulation of additional capacity deployment through a properly incentivized RPS trial. Based on the capacity projections from the OCE noted above, and using the revised production factor of 1.01 and accounting for partial-year production for capacity installed in year, the market balance degrades significantly over the next two years:

Energy Year	Installed As Of June 1	Installed In-Yr (thru May 31)	SRECs Generated	SRECs Required	SREC Excess (- = shortfall)
2006/2007	18.0 MW	24.0 MW	30,300	29,003	1,297
2007/2008	42.0 MW	18.4 MW	51,712	60,948	- 9,236
2008/2009	60.4 MW	22.6 MW	72,417	120,640	- 48,223
2009/2010	83.0 MW	0	83,830	168,000	- 84,170

The capacity resulting from the current CORE budget will generate a projected SREC shortfall of at least 9,236 SRECs in 07/08, and an even more alarming 48,223 SRECs in 08/09, and that is assuming every dollar in the CORE budget is allocated in time to allow for ***timely*** construction. It is therefore clear that the proposed CORE budget cannot support the capacity needed to fulfill the RPS goals of the next two years, and that additional non-CORE (i.e., REC-only) capacity must be started now. Contrary to the conclusion reached in the straw proposal, stimulating IMMEDIATE additional capacity through the RPS trial is demonstrably needed to attain RPS compliance in 07/08 and 08/09.

Using predominately OCE capacity projections that result from the current CORE program, combined with verifiable production estimates, several significant conclusions offered by the straw are not well supported. Although the current energy year (06/07) is approximately in balance, even an optimistic projection results in significant (>9,000 SREC) shortfall in 07/08, and an even larger shortfall (over 48,000 SRECs) in 08/09. There is strong evidence to support the fact that an immediate launch of a properly incentivized REC-only trial will not negatively impact 06/07 market balance, and is absolutely required to avoid significant SREC supply shortfall beginning in 07/08 and growing every year thereafter. It is especially critical to note that the REC-only trial is necessary to ensure 07/08 supply, not just the 08/09 RPS goal as implied by the straw.

2. Smooth Market Transition

Both the EDECA legislation, and general regulatory law, implies a certain responsibility for orderly development of the market, and protections from overly disruptive regulatory changes or market growth gaps. As noted in EDECA:

> NJSA 48:3-50 (Legislative findings): "The Legislature finds and declares that it is the policy of this State to:...(12) Provide for a *smooth transition* from regulated to a competitive power supply marketplace, including provisions which afford fair treatment to *all stakeholders* during the transition. (emphasis added)

In particular, it is necessary for there to be consistent growth in new business year after year, without significant periods of "no sales activity" or protracted regulatory uncertainty. It is new sales that drive growth, not project backlog. With limited rebate availability and no short-term prospect of a higher ACP to compensate (as proposed in the straw proposal), new project development has already virtually ceased in New Jersey. This shutdown will be dramatically extended under the straw proposal, virtually guaranteeing SREC shortfall in 07/08 and beyond. Continued delays in new project development will result in job loss, additional PV supply constraints, and growing consumer disenchantment and negative PR. Even more importantly, critical capital investment resources have already withdrawn, and growth capital in the NJ market has become extremely scarce. The impact of this investment chill is already being felt, but the market impacts will become more pronounced over the next 18 months right when large capacity deployment is required to ensure adequate RPS supply. Note that the industry has to effectively double its output every year for the next few years to meet the RPS goals.

This contraction is inconsistent with the legislative goals of a smooth transition and orderly market development, and can only be remedied by quickly launching a program, pilot or otherwise, that provides adequate market incentives to continue new business development. The OCE has consistently projected a transition from rebated projects to an RPS-only environment, with an associated adjustment in the SACP to ensure viable project economics. The straw proposal represents a dramatic reversal of this direction, right at the time when investor and consumer confidence (in future SREC value) is in a fragile and nascent stage. It would take several years for the industry to recover from the impact of this change in policy direction.

New Jersey rate payers have invested nearly $100 million in building the industry to date (rebate payments through Aug 2006, not counting an additional $80.9M in outstanding rebate commitments currently under construction). It is counter to program goals to allow that investment to be unnecessarily dissipated through protracted periods of no new sales activity and the resulting erosion of critical commercial infrastructure. The direction proposed in the straw would drive investment out of New Jersey, which is in nobody's best interest and counter to both goals of the program and legislative intent.

Finally, it should be noted that Governor Corzine's recently announced strategic growth initiative created a priority for the economic development of a robust and sustainable renewable energy industry, including solar. The current market conditions of halted new business development and eroding infrastructure are counter to this goal. Immediate launch of a properly incentivized RPS-only trial is the primary opportunity for restarting needed growth without creating additional CORE program funding.

3. Project Sales Cycles For RPS Goals

The solar goals of the Clean Energy program – and objectives for policy in setting SCAP levels - should be more than just staying within the budget and meeting short-term RPS targets. The straw proposal focuses almost exclusively on the short-term SREC supply requirements, without proper consideration of the need for capacity growth after 2008. The BPU board has set aggressive long-term solar RPS targets (~1,500 MWs by 2021) that require a rapidly growing and highly capable solar industry infrastructure. This will require a sustained effort by the industry utilizing predictable program incentives. Not taking action now to either substantially raise the SACP or launch a limited Pilot Program, will cause severe industry infrastructure contraction that will have a LONG TERM affect on program goals.

The change from a rebate driven "incubator" program to a more uncertain long-term REC-only one requires careful managing to avoid disruptions to industry viability and growth. The Pilot has been presented as a chance to test key concepts to determine if a REC-only structure can work, and to understand what other measures, if any, need to be taken, by regulators or by the private-

sector, and to develop the investor confidence that will be needed for new project development. An earlier memo from PV Now to Lance Miller in Appendix B indicated some other investor confidence building measures that can be taken to more smoothly and successfully roll out a long-term REC-only program.

In addition to consideration of these longer term goals, it should also be noted that that a significant project development cycle will be required even for capacity needed in the next two years. Looking at the 08/09 requirement and working backwards, nine months from contract to install would bring us to September 1, 2007, and nine month sales cycle to find, propose, finance, and close those projects, brings us to January of 2007 – a little over two months from today. That means installing approximately 60 MW of new projects (beyond those already committed through CORE rebates) between now and June 2008, something that has never been done in New Jersey before – and especially with a new and untested incentive. Clearly, time is of the essence not only to fill out the 2007 reporting year, but to meet the goals for the 2008 reporting year. In 2009 the requirement doubles to approximately 119 MWs.

4. Pilot program recommendations

Need for the SACP to rise when CORE rebates go away

The financial viability of a solar project will be based on revenue flows from a variety of sources. The combination of these revenue streams must provide a sufficient return or payback to justify the investment. Although certain customers will require a very low economic return for a solar project (due to environmental, security, or other motivating factors), in order for solar to become a mainstream economic choice, the market must be broadened to a customer base where beneficial project economics are compelling.

The analysis done by the New Jersey and national solar industry has included all the current revenue sources in its models.[1] These include customer electricity savings, CORE rebates, SREC sales and federal tax incentives. Today, the CORE rebates represent a significant portion of the total economic return for projects and substantial investor risk reduction. As the Office of Clean Energy institutes a policy shift to eliminate (or drastically reduce) the CORE rebates, projects will need to rely more heavily on the other revenue streams. In the near term, the only revenue source that can be increased easily is the SREC. As seen in Appendix C, the elimination of the CORE rebate indicates that an extremely modest IRR of 6.4% (well below what many customers will demand) requires that the project actually capture $700 in SREC value. We are suggesting an SACP approximately 20% above the likely SREC value in order to encourage LSE participation in the market, and to account for the historical difference between SACP level and actual SREC sales pricing. Based on this model, an SACP (for non-rebated trial SRECs) of about $850/SREC is recommended.

Need for a 2008 pilot with a higher SACP

As stated above, we believe that the best course of action for the BPU to take is to establish a pilot program in the Energy Year 2008 (June 1, 2007- May 31, 2008) in order to close a gap in solar MWh production needed to meet the 2007 and 2008 RPS requirements (and beyond). In addition, a trial program (approximately 17 MW) will allow the Office of Clean Energy to work out the kinks in the transition to a REC only program before the CORE rebates are eliminated. This experience will allow the transition for the entire market to occur much more smoothly and seamlessly.

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[1] A spreadsheet run showing a no rebate project for a 100 kW commercial system with accelerated depreciation, a 30% federal tax credit, a $7.50/w installed cost and an initial SREC revenue of $700 (declining 5%/yr.) is shown in Appendix C. The IRR for such a project is 6.4%.

In order to institute the no-rebate pilot, it will be necessary to immediately raise the SACP for the portion of the total LSE requirement enrolled in the pilot. We have suggested the level of that no-rebate SACP be set at 120% of the likely SREC price. This approach is consistent with the RPS rules, which according to Mr. Hunter's memo[2] require that,

> "At a minimum, the price of an ACP or an SACP shall be higher than the estimated competitive market cost of the following:
>
> 1. The cost of meeting the requirement through purchase of a REC or a solar REC; or
> 2. The cost of meeting the requirement through generating the required renewable energy. "

Since the purpose of the SACP is to encourage a vibrant trading market, the establishment of an initial SACP level of $850 for the 17 MW pilot is appropriate and consistent with the RPS rules.

Need for a multi year SACP schedule

The BGS suppliers in New Jersey are preparing their bidding strategies for the February 2007 BGS auction. In that auction, a percentage of the supply will be bid out for terms of three years (energy years 2008, 2009 and 2010). The solar industry agrees with potential BGS suppliers who have argued that they need regulatory certainty regarding their maximum exposure for RPS compliance costs. Without such certainty, they have stated that their bids will likely include a risk premium to reflect that uncertainty. Since one of the goals of the OCE, the BPU Commissioners and the solar industry is to meet (or exceed) RPS goals at the lowest possible cost to New Jersey ratepayers, we agree that the ACP levels should be established at a minimum for the term of the BGS auction, and ideally for five years. Establishing a multi-year schedule has the further benefit of reducing the opportunity for inappropriate SREC speculation in the industry (i.e., project developers projecting an unrealistically high SREC value when estimating project economics).

The argument to publish a five year SACP schedule is based on the financial reality of developing solar projects without the customer CORE rebates. The solar industry has been working diligently with other stakeholders and the OCE in developing approaches that will meet the OCE goal of eliminating (or severely limiting) CORE rebates while shifting the financing mechanism for meeting RPS compliance to REC based trading approaches. In order to make this transition, it is imperative that new finance providers be enticed into the New Jersey solar market. The same logic that has been used by the BGS providers to explain their need for risk premiums to adjust for unknown regulatory circumstances applies to these financial market participants. Knowing where the SACP level will be set for the next five years will allow these providers of solar project capital to understand the maximum price that RECs will sell for and build their financial projections upon firmer data than without knowledge of their downside financial exposure.

Recommendations for a five year SACP schedule for two types of SRECs

Based on the need for a no-rebate pilot in Energy Year 2008, to be followed in future energy years with a transition where CORE rebates are eliminated for all new solar projects, the following schedule is presented for a five year fixed SACP schedule that will provide regulatory certainty to the BGS suppliers as well as potential solar financial entities.

Specifically, we have presented a five year schedule for two sets of fixed SACP levels- one to apply to those projects receiving rebates (SREC) and the second to apply to those installations where no rebates were received (no-rebate SRECs).

---

2 from Scott Hunter, Renewable Energy Program Administrator to Mike Winka, entitled "Straw Proposal for ACP and SACP Levels for RY 2008 in NJ RPS", October 17, 2006. p.3

Energy Year	Total SREC Requirement	No-rebate SRECs (new)	No-rebate SRECs (total)	No rebate SREC %	No-rebate SACP value	SRECs (with rebates)	SREC %[3]	Rebated SACP value
2008	60,948	9236[4]	9236	15	850	51,712	85	300
2009	120,640	38,987	48,223	40	800	72,417	60	285
2010	168,000	35,947	84,170	50	750	83,830	50	270
2011	234,000	66,000	150,170	64	700	83,830	36	255
2012	306,000	72,000	219,360	72	675	86,640	28	245

Need for a transition to a single SACP value

In previous correspondence to Lance Miller (Appendix B), we have made the point that the SREC market will ultimately function more efficiently and at a lower cost if there is one SREC product that is traded and retired. We are sensitive to the concern of the OCE that establishing one SREC immediately will tend to raise the overall costs of compliance that ratepayers will shoulder. We have suggested a plan for establishing a second, temporary class of SRECs that will be created by solar generation from systems that do not receive CORE rebates.[5] This non-rebate SREC would trade as a separate class of SRECs. LSE's would have a proportionate percentage of their solar RPS requirement composed of existing SRECs and the new, non-rebated SRECs. These separate requirements would continue until Energy Year 2015, at which time the two SREC types would merge and a single SACP would apply to all SRECs.

Specifically, we have presented a five year schedule for two sets of fixed SACP levels- one to apply to those projects receiving rebates (SREC) and the second to apply to those installations where no rebates were received (no-rebate "trial" SRECs). In addition we have provided our recommendations for the appropriate schedule for merging the two SREC types after a seven year period. If this proposal were adopted, there would be only one SREC type in Energy Year 2015 with one corresponding SACP value as well. All facilities (legacy systems and those installed under the trial) would continue to trade under a single SREC regime following this convergence.

The following charts build upon our letter to Lance Miller of September 11, 2006 in which we described how a transition from a rebate enhanced REC market to one totally reliant on REC income can be managed. In terms of the SACP discussion which is the focus of this paper, we present below our recommendations for the SACP levels that should be established during this transition period.

[3] Assumes that rebates go away in 2009 energy year and SRECs from rebated systems remain at 83,830 thru 2012

[4] Although the first year pilot is 17 MW, we anticipate that timing of installations will be such that the 17 MW will produce approximately 9300 MWh for Energy Year 2008.

[5] We have also proposed a transition plan that includes minimal rebates for residential and public projects to level the playing field between large commercial projects that have cost advantages of scale and access to tax credits not available to residential or public projects.

Energy Year	Total SREC Requirement	No-rebate SRECs (new)	No-rebate SRECs (total)	No rebate SREC %	No-rebate SACP value	SRECs (with rebates)	SREC %[6]	Rebated SACP value
2008	60,948	9236	9236	15	850	51,712	85	300
2009	120,640	38,987	48,223	40	800	72,417	60	285
2010	168,000	35,947	84,170	50	750	83,830	50	270
2011	234,000	66,000	150,170	64	700	83,830	36	255
2012	306,000	72,000	222,170	73	675	83,830	27	245
2013	390,000	84,000	306,170	79	650	83,830	21	235
2014	492,000	102,000	408,170	83	620	83,830	17	220

Merge SREC markets in 2015

Energy Year	Total SREC Requirement	No-rebate SRECs (new)	No-rebate SRECs (total)	No rebate SREC %	SRECs (with rebates)	Rebate SREC %[3]	SACP (for all capacity)
2015	612,000	120,000	528,170	86	83,830	14	590[5]

In considering appropriate levels of the SACP, it is critical that the ACP Committee consider the longer term implications of our decision. The memo from Mr. Hunter has recommended that the Committee focus on establishing ACP levels for the Energy Year 2008. Although we respectfully disagree with the analysis that shows that there will probably not be a shortfall in 2008, just as importantly, we should consider a recommendation that the BPU establish a five year SACP schedule. Such a schedule needs to recognize that the fundamental shift in solar program design as envisioned by the OCE (from rebates to SRECs) must be accompanied with substantial increases in SREC prices to support the financial integrity of solar development in New Jersey. Without such increases, achieving the RPS goals as established by the BPU will be in serious jeopardy.

The OCE and the BPU is to be commended for establishing a solar program that has jump started a very dynamic industry in New Jersey. As we move to the next phase of industry growth, we look forward to providing input as to the economic realities of project development using a REC only mechanism to capture the many public benefits of solar energy. Our recommendations for changing the Straw proposal to reflect those changing realities are made in this spirit.

[6] Assumes that rebates go away in 2009 energy year and SRECs from rebated systems remain at 83,830 thru 2012

Appendix A: Derivation Of System Production Factors

A crucial element in mapping MW capacity to MWHR SREC production is the Production Factor: how many kWhrs (AC) are produced by a given watt (DC-peak, STC) per year. PV-WATTs is a widely accepted independent third-party tool (DOE) for estimating system production based on various factors such as pitch and orientation. Using the accepted data for two NJ NREL locations (Newark and Atlantic City), two boundary conditions are as follows:

PVWatt Version 2

http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version2/

State	City	Latitude	PV (kW-DCrating)	DC to AC derate	Array Tilt	Array Azimuth	AC Energy (kWh)	kWh/kWp	multiplier
New Jersey	Newark	40.88	100	0.77	0	0	105,297	1053.0	1.05
New Jersey	Newark	40.88	100	0.77	40.9	180	122,560	1225.6	1.23
New Jersey	Atlantic City	39.4	100	0.77	0	0	105,969	1059.7	1.06
New Jersey	Atlantic City	39.4	100	0.77	39.4	180	123,720	1237.2	1.24

Assuming that systems are distributed equally across the state, the average production factor for NJ is 1.055 for flat systems, and 1.235 for systems at a 40-degree pitch. Assuming a distribution of 60% of systems at or near 0-degree tilt (most commercial systems), and 40% at 40-degrees, the statewide average become 1.127.

We would therefore expect systems across the state to AVERAGE 1.127 annual kWhrs/watt-DC. This is for PERFECT systems, with no shade and with ideal orientation. Actual systems experience some shade, for which an additional factor of 90% is appropriate – this implies that all systems average 90% of ideal conditions, which is highly optimistic given that the CORE program allows shade (and other orientation and tilt) impacts down to 75%. 90% of the 1.127 factor yields an overall state-wide performance factor of 1.01 annual kWhrs-AC/watt-DC.

This number is considered somewhat optimistic since PV-Watts is known to not account well for actual snow load, since systems are distributed more northward (above I-195), and since few systems are actually pitched at the optimal 40-degrees (20-30 degrees is much more common). A production factor of 1.01 is therefore considered sound but conservative.

ACTUAL industry production, based on real system data since 2003, results in a production factor of 1.00 or slightly below. This is an average across all types of systems in a variety of realistic engineering scenarios (variations of orientation, pitch, shade, etc). This industry baseline therefore substantiates the 1.01 factor derived (with a 90% shade factor) from PV-Watts.

Appendix B: PV Now Letter To Lance Miller

PVNow

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MEMO

To: Mr. Lance Miller
NJ BPU Chief of Staff
CC: Mike Winka, NJCEP
From: Tom Leyden representing PV Now (609-964-8900)
Mark Warner, Sun Farm Ventures (908-788-7003)
Jim Torpey, Madison Energy Consultants (973-714-9388)
Date: October 23, 2006
RE: **Follow-up to RPS trial proposal – and letter dated September 12, 2006**

Following the Renewable Energy Committee meeting on September 26, 2006 and in response to the extensive discussion on REC only models and a REC only Pilot program, we would like to follow-up our letter of September 12 and propose the following -- a path forward that would enable an orderly transition of the existing solar REC marketplace with the least amount of disruption of the momentum of New Jersey's solar energy initiatives. A key factor is to quickly launch a Pilot -- which is imperative for solar companies to continue to market and sell in 2006 -- and implement a workable incentive structure planned for and in place by early Q1 2007. We believe by working in PARALLEL with each of the three initiatives below, a short AND long-term solution can be implemented that meets the solar goals in the RPS. Each of the program elements described below helps in its own way to enhance a fully functioning and reliable solar REC based market for RPS compliance.

Solar Pilot Program – Q 4 Launch (target completion 2006)	**Solar Pilot Program – Enhanced** (target completion 2007)	**Permanent REC-Only Program** (target completion 2007 or later)
1. BPU approval for REC-only Pilot with "super" SREC class and 17 MW limit – by November (assumes no rule change for Pilot required). Note: Pilot open to all system sizes which can voluntarily opt-in to this program. 2. ACP board meets and sends recommendation for raising the ACP to the BPU. ACP committee acts in October -- to the BPU in November. ACP board further recommends a 10-year ACP schedule that changes only with material changes in market conditions, 3. Allow no-rebate projects to produce and register SRECs – requires administrative clarification. 4. Review Pilot at 10 MW commitment point, and assuming success, expand to next level of RPS requirement.	1. Undertake rule change process (if necessary) to extend SREC life to two years. 2. Develop underwriter and other measures to secure long-term REC value confidence. 3. Allow grid-supply projects to produce and register SRECs.	1. Enhance <40kW project participation in new SREC market either with schedule of continued but declining rebates through 2012 or institute tariff to support these projects. 2. Merge rebated SREC ACP and "super" SREC ACP in year 7. 3. Learn from Pilot and institute long-term REC-only RPS program.

We believe this Pilot will be very instructive regarding the long-term viability of a REC-only market, and allow for short- and near-term project development without undue disruption. Please feel free to contact any of us with further questions or comments.

Appendix C: Project Economics Model

INDUSTRY MODEL FOR DETERMINING LIKELY SERC PRICES WITH NO REBATE SUPPORT- COMMERCIAL 100 KW CASE

Commercial Application: 100KW RPS Only
Assumes RPS Value declines 5% every year

Yellow = Input Parameter
Orange = Computed Input
Blue = Heading
Green = Key Computed Result

Constant Assumptions

System Size (KW-DC)	100.000		
Construction Cost	$750,000	$7.50	$/watt
Capacity based incentive (NJ Rebate)	$0		
Production Factor (first year, kwhr/Wdc STC)	1.00	Note: degredation reflected in annual production estimates	
System Peformance Degredation (%/yr)	0.005		
Annual Power Cost Escalation	0.02		
Federal Tax Rate	0.35	Note: State tax implications not considered	
Federal Tax Credit Basis	$750,000	Assumes zero rebate received by customer and taxable, so basis is total construction costs	
Federal Tax Credit	$225,000	30% FTC, assuming service date by 12/31/07	
Federal Depreciation Basis	$637,500	Net cost (after rebate), minus half the FTC	
SACP to SREC Value Ration	1.2		

Annual Assumptions	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**Yr 6**	**Yr 7**	**Yr 8**	**Yr 9**	**Yr 10**
Retail Value Of Displaced Electricity ($/kwhr)	$0.0980	$0.1000	$0.1020	$0.1040	$0.1061	$0.1082	$0.1104	$0.1126	$0.1148	$0.1171
SREC Value ($/kwhr)	$0.700	$0.665	$0.632	$0.600	$0.570	$0.542	$0.515	$0.489	$0.464	$0.441
Maintenance Costs (amortized $/kwhr)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Annual Production (kwhr)	100,000	99,500	99,003	98,507	98,015	97,525	97,037	96,552	96,069	95,589
Required SACP To Realize Assumed SREC Price	$840.00	$798.00	$758.10	$720.20	$684.19	$649.98	$617.48	$586.60	$557.27	$529.41
Rounded SACP For Planning Purposes	$850	$800	$750	$700	$675	$650	$620	$590	$560	$530

Project Economics (Customer Cashflow)		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Construction Investment		-$750,000									
Cashflows (pre-tax, + = income or savings)											
Rebate		$0									
SAVINGS From Displaced Power Purchase		$9,800	$9,946	$10,094	$10,245	$10,397	$10,552	$10,709	$10,869	$11,031	$11,195
SREC Income		$70,000	$66,168	$62,545	$59,120	$55,884	$52,824	$49,932	$47,198	$44,614	$42,171
Operating Expense (Maint. Sinking Fund)		-$2,000	-$1,990	-$1,980	-$1,970	-$1,960	-$1,950	-$1,941	-$1,931	-$1,921	-$1,912
Sub-Total Annual Cashflows (pre-tax)		$77,800	$74,124	$70,659	$67,395	$64,321	$61,426	$58,701	$56,136	$53,724	$51,455
Federal Tax Calculation											
Taxable Income											
Net Annual Cashflows		$77,800	$74,124	$70,659	$67,395	$64,321	$61,426	$58,701	$56,136	$53,724	$51,455
MACRS Deduction		-$127,500	-$204,000	-$122,400	-$73,313	-$73,313	-$36,975				
Sub-Total: Taxable Income (+=income)		-$49,700	-$129,876	-$51,741	-$5,918	-$8,992	$24,451	$58,701	$56,136	$53,724	$51,455
Federal Tax Obligation (+=refund)		$17,395	$45,457	$18,109	$2,071	$3,147	-$8,558	-$20,545	-$19,648	-$18,803	-$18,009
Federal Investment Tax Credit		$225,000									
Net Federal Tax Benefit (+=refund)		$242,395	$45,457	$18,109	$2,071	$3,147	-$8,558	-$20,545	-$19,648	-$18,803	-$18,009
Net Cashflow (after federal tax)	$111,355	-$429,805	$119,580	$88,768	$69,466	$67,468	$52,868	$38,155	$36,488	$34,920	$33,446
Cummulative Cashflow		-$429,805	-$310,225	-$221,456	-$151,990	-$84,522	-$31,655	$6,501	$42,989	$77,910	$111,355
Customer IRR	6.4%										