Environmental Markets Association
355 Lexington Avenue, 15th Floor
New York, NY 10017
www.emahq.org

New Jersey Solar Transition
Staff Straw Proposal ("Straw Proposal")

VIA ELECTRONIC DELIVERY March 1, 2019

Aida Camacho-Welch, Secretary
Board of Public Utilities
44 So. Clinton Avenue
Trenton, NJ 08625

Re: Environmental Markets Association's Comments on New Jersey's Solar Transition Proceeding and Renewable Portfolio Standard Recommendations

Dear New Jersey Board of Public Utilities Staff:

The Environmental Markets Association ("EMA") is pleased to help inform the design of New Jersey's solar transition as required by P.L. 2018, c.17 (the "Clean Energy Act"). EMA recognizes and appreciates the immense challenge that the New Jersey ("NJ") Board of Public Utilities ("BPU") has been assigned with in the implementation of the Clean Energy Act, particularly around the issues of the cost cap and the desire to promote solar growth in the State, while cost-effectively achieving a 50% renewable portfolio standard ("RPS") by 2030.

EMA is comprised of local, regional, and national member companies that have participated in NJ's solar renewable energy certificate ("SREC") market program since inception, including early engagement in the actual setup and implementation of the original NJ SREC program. EMA Members have worked extensively to achieve the program's targets and continue to interface with the policy in multiple ways (e.g., as retail electricity suppliers, basic generation service providers, SREC traders, SREC brokers, SREC marketplaces, SREC aggregators, solar energy project developers, and as solar energy project investors). Accordingly, the EMA believes it is in a unique position to provide the BPU with a balanced perspective of this policy's history and to help the BPU adopt a balanced framework that can satisfy each SREC Transition Principle.

EMA's comments are primarily focused on the design of the solar successor program and the diverse set of options and tools available to the NJ BPU that can be used to establish an RPS budget that can accommodate the NJ Class I, NJ SREC, and the forthcoming NJ SREC II program. The EMA strongly recommends that the NJ BPU pursue a tradable NJ SREC II program that is modelled based on the existing, effective, NJ SREC program. Enclosed in this submission please find the following:

- Appendix A – Answers to NJ Solar Transition Staff Straw Proposal Questions
- Appendix B – Best Practice Principles for Renewable Energy Certificate Markets
- Appendix C – Supplemental Guidance Document
- Attachment A: Excel-based Model "*NJ SREC Successor Program Model – EMA"*

EMA's primary goal with this submission is to help the NJ BPU come up with solutions that allow the fulfillment of all Clean Energy Act requirements, including the Law's overarching legal requirement for the BPU to place greater reliance on competitive markets. As such, a great deal of information is provided to illuminate this point further and to demonstrate the practicality of adopting EMA's recommended framework approach.

More specifically, EMA would like to make the NJ BPU aware of how its proposed framework for a tradable NJ SREC II market can:

- Be easy to administrate and start as soon as June 1, 2020, or the beginning of Energy Year ("EY") 2021, as the market and policy infrastructure already exists,
- Efficiently operate with NJ's retail choice policy and BGS auctions to contain electricity-sector ratepayer impact,
- Consider cost cap banking and the inclusion of positive in-state solar energy externalities to sufficiently expand the RPS budget to accommodate the NJ Class I, NJ SREC, and NJ SREC II programs to achieve 50% Class I resources by 2030,
- Be compatible with embedded long-term contracts in a way that adopts and improves upon the existing and operational SREC-Based Financing Program if the BPU decides it wants to pursue this type of policy to lower RPS costs through amortization or to incentivize different types of project segments,
- Use private pools of capital to carry NJ SREC II compliance costs forward to accommodate the step-down of the existing Legacy SREC program

EMA hopes that its submission will highlight the myriad of tools available to the BPU that can be used to achieve each SREC Transition Principle and get NJ's RPS back on track.

It is imperative for NJ stakeholders to understand that when federal subsidies for renewable energy expire or weaken, there must be robust market mechanisms in place to ensure that NJ will be able to cost-effectively support its clean energy targets. Failing to make sure competitive markets remain in place for the achievement of these RPS targets will create business continuity challenges for the industry and will create substantial risk to NJ ratepayers in the future.

Thank you for your consideration of our comments. The EMA is ready to offer any additional assistance as needed by the BPU as New Jersey moves toward its clean energy future.

Sincerely,

David Bernstein
Executive Director
Environmental Markets Association
Ph: (212) 297-2138

Appendix A – Answers to NJ Solar Transition Staff Straw Proposal Questions

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1) In your direct experience, how has the current SREC program functioned over the past 5 years?

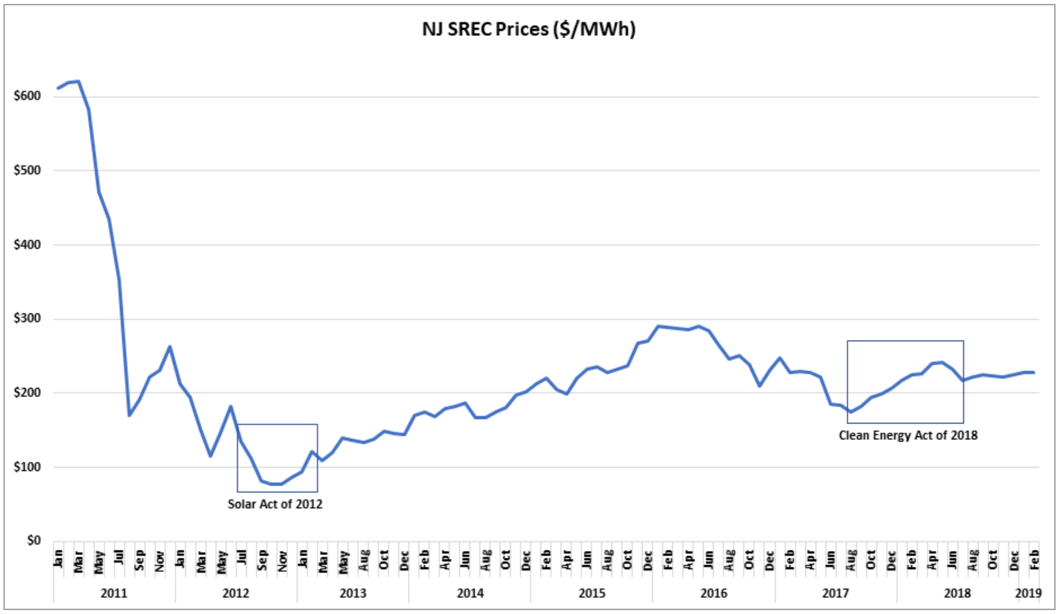
EMA believes that NJ's solar accomplishments would not have been possible without the reliance on, and oversight of, a competitive SREC-based marketplace and restructured electricity market that enables choice, the private ownership of generation, and annual enforcement of solar energy targets. More specifically:

- **Positive program performance data –** The EMA believes that the current NJ SREC program has functioned extremely effectively when measured against the deployment of new solar energy resources and the achievement of all solar energy percentage requirements in the quantity and timeframe as established by the NJ Legislature. As a policy mechanism designed to verifiably achieve clean energy targets through the facilitation of private investment, the program's performance data has been one of the best in the Nation:
    - Since program inception, 97% of historical compliance[1] across all vintages has been achieved through the issuance and retirement of SRECs. This data shows that the pace and timing of solar development has consistently been comparable to the requirements, which is remarkable given that NJ has some of the most aggressive solar energy requirements in the Nation,
    - Over $10 billion of private investment to date, which has simultaneously enabled the successful leveraging of billions of dollars in federal resources via the use of the federal investment tax credit,
    - More than 2.7 gigawatts of cumulative solar energy generation capacity and 105,000 solar energy installations that are benefitting NJ residents, businesses, non-profits, and municipalities every day

- **A tradable SREC market that has worked efficiently with NJ's restructured electricity market –** By design, the NJ SREC market has worked efficiently with NJ's retail choice policy and full-requirements basic generation service auctions despite some implementation challenges with the handling of exemptions and how RPS obligations are reconciled annually. By using best-practice RPS design principles such as a fixed and forward looking solar carve out compliance schedule and solar alternative compliance payment ("SACP") schedule, NJ's solar carve out maximizes compliance flexibility for electricity suppliers. Historically speaking (i.e., pre-Clean Energy Act percentage-based cost caps and market closure proceedings), NJ's SREC market has been one of the most functional REC markets in the U.S. when measured by market liquidity, pricing transparency, and the ability of the over-the-counter (bilateral) market to generate forward SREC contracts that developers have been able to use for project finance purposes. NJ SREC contract liquidity on a forward-basis has existed in the 5-10 year range depending on credit considerations. In addition, the market has available to it a liquid market in NJ SREC futures contracts, which are further used by participants to manage price risk. The fundamental design of NJ's SREC market, coupled with appropriately set targets, has successfully fostered the mobilization of private capital into the SREC market for offtake liquidity and project finance purposes.

[1] http://www.njcleanenergy.com/files/file/rps/EY18/RPS%20Comp%20EY%202005-2018.pdf

- **The solar carve out policy mechanism should not be confused with the "excessive cost debate and narrative," which is a function of legislative decisions rather than of fundamental policy design –** The EMA is dismayed by the narrative that has been created around the NJ SREC program as a policy tool that has led to excessive compliance costs. In practice, the current NJ SREC mechanism has been so effective at promoting the deployment of new solar energy resources (in combination with tax credits and net-energy metering policy) that the Legislature has twice stepped in to increase the solar program requirement percentage obligations ahead of the terminal year of the program (once in 2012 and again in 2018).



For this reason, it is important that the achievement of solar energy obligations ahead of schedule *be interpreted as the sign of a successful clean energy deployment mechanism* and not be misinterpreted as a sign of a policy mechanism that over incentivizes the solar industry. To do the latter would be a material misunderstanding of the fundamental policy itself as originally designed and intended to operate and a failure to incorporate its regulatory history up through the program's market closure proceedings. Since costs are so central to current discussions and this regulatory proceeding, the EMA believes it is unfair to criticize a successful policy mechanism that is working perfectly as designed. REC pricing should decline in oversupplied markets and should increase in undersupplied markets relative to legislatively set standards. Floating pricing is, in fact, a key ratepayer relief valve mechanism that is misinterpreted as a "boom / bust" market issue. Pricing that responds to information is the sign of a healthy market and not the sign of market failure, which is especially true in New Jersey's context given the success of solar resource deployment to achieve its solar targets. The tradable NJ SREC mechanism works as designed and this is not an accident. An incredible amount of expert regulatory and industry thought went into the initial establishment of competitive-based market policies during the era of electric restructuring.

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2) How should any proposed SREC Successor Program be organized in conformance with the Clean Energy Act and Staff's SREC Transition Principles? Please provide detailed quantitative and qualitative responses as to the perceived pros and cons of each of the following options:

a. a fixed price SREC;

b. a market-determined SREC; and

c. any other option(s).

The progress achieved by NJ's RPS policy through the use of tradeable products is undeniable and should serve as an indicator to policymakers and stakeholders to continue relying on competitive market mechanisms containing tradeable products to achieve future renewable and clean energy goals. Therefore, EMA strongly encourages the NJ BPU to adopt a market-determined SREC mechanism for the SREC Successor Program. The EMA believes that this approach is most consistent with the legislative requirement of paragraph l. of Section 38 of P.L.1999 to place greater reliance on competitive markets:

> 2. Section 38 of P.L.1999, c.23 (C.48:3-87) is amended to read as follows:
>
> l. The board shall implement its responsibilities under the provisions of this section in such a manner as to:
>
> (1) place greater reliance on competitive markets, with the explicit goal of encouraging and ensuring the emergence of new entrants that can foster innovations and price competition;

The EMA believes that a competitive and tradable SREC II market for the SREC successor program is the most compatible path forward to encourage and ensure the emergence of new entrants that can foster innovations and price competition. EMA's recommended framework is also compatible with NJ's current reliance on other competitive market policies, including:

- Competitive infrastructure markets (private ownership of generation)
- Competitive wholesale electricity markets (no mandated energy PPAs on EDCs)
- Competitive retail electricity supply markets (retail choice, including for BGS customers that want to switch to a third-party supplier at any time)
- Competitive and tradable NJ REC markets (market-determined floating prices)

New Jersey's restructuring and participation in competitive wholesale, retail, and renewable energy certificate markets has fostered innovation, price competition and increased the diversity of energy market participants. The ratepayer benefits to states that have restructured to place greater reliance on competitive markets is well documented.[2]

[2] https://www.resausa.org/sites/default/files/RESA_Restructuring_Recharged_White%20Paper_0.pdf

Regarding the benefits of a tradable NJ SREC II program, EMA members are pleased to share a pair of guiding documents created by the collaboration of our experienced members: *Best Practice Principles for Renewable Energy Certificate Markets* (attached as Appendix B) and a *Supplemental Guidance Document* (attached as Appendix C). In them, EMA explains areas that are crucial to a well-functioning and efficient REC market that can maximize RPS benefits. Specifically, these principles are:

1) Tradeable Products

New Jersey should continue to achieve its RPS targets using tradable RECs, wherever possible. Tradable RECs allow for **accountable policy objectives**, **compliance flexibility**, and **financial innovation**[3].

2) Market-Based Pricing

New Jersey should allow market participants to facilitate the price discovery process for RECs wherever possible. Market-based pricing will allow for **pricing transparency**, **policy cost-effectiveness**, **ratepayer protection**[4], **information feedback signals**, and a more **diverse participant base**.

3) Market Design that Fosters Transparency, Competition, and Liquidity

New Jersey should continue to promote competition among all technologies and for all REC classes (NJ Class I, NJ Class II, NJ SREC, and the forthcoming "NJ SREC II" program) by maintaining all RPS obligations with electricity suppliers as opposed to electric distribution companies. New Jersey should avoid placing long-term contracting obligations on any electricity supplier or on ratepayers. In circumstances where tradable RECs may not achieve NJ's policy objectives (e.g., offshore wind), New Jersey should ensure that the design of a long-term contracting program does not interfere or damage the integrity of New Jersey's other REC classes or New Jersey's competitive retail supply market. Well-designed REC markets allow for **market efficiency, liquidity**, **investor certainty**, and **lower costs of capital** that support cost-effective RPS achievement.

[3] Financial innovation refers to the creative usage of financial instruments for commercial purposes including, but not limited to, project financing, investment certainty, risk management, and price hedging, all of which contribute to competitive outcomes that ultimately benefit ratepayers. Tradable RECs priced by vintage create reference prices for both physical and financial REC contracts (e.g. forward and futures contracts, respectively) that can be used to facilitate project investment through contracted revenue and to manage price risk. By helping to lower the risk of economic activity, or by giving market participants tools to transfer risk, the availability of financial products can lower the cost of capital for renewable resource investments. This supports lower REC prices and lower RPS costs.

[4] A significant and compelling advantage of well-designed RPS mechanisms is that they leverage private investment and utilize competitive markets to achieve the standards. For example, floating REC prices ensure that when markets become oversupplied ratepayer costs also decline. RPS policies that place obligations on electricity suppliers and use tradable RECs to incentivize and account for renewable energy targets yield many benefits to ratepayers, one of the most important being that private investors, not ratepayers or taxpayers, bear the risk of clean energy investments.

4) Market Oversight

New Jersey should continue to maintain market oversight through the BPU and the use of the PJM-GATS environmental registry to collect data, report on RPS progress, and identify, monitor, and address any fraud or manipulation in the markets.

5) Market Integrity and Stability

New Jersey's RPS mechanism has been successful because it facilitates private investment at the risk of private investors, not ratepayers, and is designed to accommodate, not preempt, other federal, regional, and state policies. New Jersey should promote **Market Integrity and Stability** by maintaining the fundamental structure of its RPS to achieve 100% clean energy. Policy stability and long-term certainty is not only crucial to investor confidence and financial innovation but also for ratepayer protection.

EMA's principles and supplemental design practices encourage private market investment and result in well-functioning and efficient markets that will achieve the stated goals at the most competitive price to ratepayers. EMA's REC market principles are intended to maintain the integrity of the RPS mechanism, which is extremely effective and is designed to efficiently work with New Jersey's retail electric choice policy.

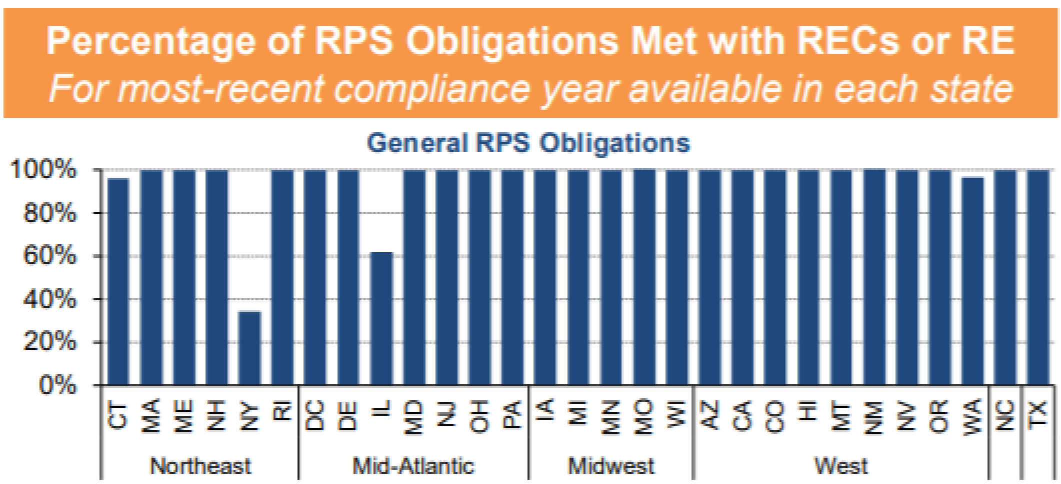
(A) and (C) commentary

The EMA strongly discourages the implementation of any incentive programs that place less reliance on competitive markets or move New Jersey's electricity market policies back towards re-regulation. At their core, regulated market policy constructs shift generation investment risk back onto ratepayers through the fixing and guarantee of investment return or revenue. In deregulated markets, generating investment risk sits with private investors and entrepreneurs, which is an incredibly important ratepayer cost containment mechanism since private investors bear the risk of their own economic assumptions and ability to profitably deliver new generation resources. The same is not true of the following alternatives to a tradable NJ SREC II program:

- Feed-in Tariffs (Megawatt Block, Declining Block, Adjustable Block, Fixed Tariffs, Competitive Tariffs, etc. – In the Northeast, feed-in tariffs go by many names these days in the regulatory realm),
- Bundled Long-term Energy and SREC Contracts,
- SREC-only Long-term Contracts, and
- Fixed-Price SREC programs (queue-based capacity limits on annual build)

As a group of practitioners with direct experience with NJ's RPS and SREC market, EMA cannot emphasize enough that while these types of policies may sound attractive in academic theory or from a project finance 101 perspective, the on-the-ground reality and historical experience with these programs does not align with their expectations and therefore will not meet the needs of the SREC Transition Principles as laid out by the NJ BPU. There are many reasons for this:

(1) Historical RPS data[5] show that these types of policies are not as effective as tradable REC markets when it comes to RPS achievement. According to a series of reports issued annually by the Electricity Markets & Policy Group of Lawrence Berkeley National Laboratory, RPS jurisdictions in the Northeast which prioritize long-term contracts over tradable RECs for the purposes of RPS achievement have consistently failed to achieve their standards compared to jurisdictions that primarily rely on tradable RECs for RPS compliance:



Source: LBNL 2017 | Note: Previous annual reports are consistent with this trend. In particular, NY and IL have been laggards in achieving their RPS standards on time based on the design of how they procure attributes to achieve RPS targets.

(2) EMA's solar energy developer member feedback is that these types of policies are less effective than tradable SREC markets because it is incredibly challenging to align a shovel ready project, with a contract award, and a project finance commitment (not to mention doing so at the right construction season and at the right tax equity cycle). In New Jersey, EMA would also like to point out that the State has already implemented long-term contracting programs that attempted to fix and guarantee a price for cost recovery. The existing New Jersey long-term contract program, or SREC-Based Financing Program, that is available today has had uptake issues due to design flaws. According to feedback from our solar energy developer members, these programs have been undersubscribed and plagued by high administrative costs and implementation issues. Historically speaking, this situation is not unique to New Jersey. Most long-term contracting

[5] https://emp.lbl.gov/publications/us-renewables-portfolio-standards-1

programs across U.S. jurisdictions have trouble at achieving their targets as the LBNL reports highlight. EMA is therefore wary of incentive solutions that are overprescribed or too engineered. Slight flaws in program or contract design can break these programs which can then take a long time to fix in the regulatory process. In New Jersey's case, the bidding requirements for this program do not align well with the development reality of solar energy projects – it is therefore extremely challenging to use and even harder to employ a solar energy business under this type of incentive model. The program is by no means a complete failure, but it would not have had the same success as the NJ SREC market did if it were to have been the primary incentive mechanism in the State. It would come as no surprise to us if proponents of these programs are completely unaware that New Jersey already has such a program in place. We hope that the NJ BPU takes the historical experience of this program into account when proponents of feed-in tariffs (fixed-price tariffs, MW blocks programs) or other long-term contracting programs (bundled or unbundled) offer their solutions in this proceeding.

Generally, EMA is aware that there is a long-standing debate between the use of tradable REC markets and administratively designed programs through long-term contracts or feed-in tariff policies. To date, New Jersey's RPS has easily achieved its targets through tradable REC markets without the need to obligate ratepayers to long-term contracts or feed-in tariffs. Although New Jersey has used some forms of long-term contracts as part of its RPS policy, particularly within its SREC market, these have been embedded within the overall SREC markets. EMA categorically opposes the use of feed-in tariff or long-term contracting programs for RPS achievement that displace or harm competitive wholesale, retail, or tradable REC markets. There are many reasons for this:

1. These types of policies represent a form of re-regulation in that investment risk is shifted back onto ratepayers. Programs that guarantee cost recovery can discourage long-term market innovation and cost reductions.
2. Regulated policies often become overly prescriptive in their implementation, which causes unintended consequences by producing outcomes that are inefficient or ineffective (e.g., paper-based RPS achievement without the underlying delivery of environmental, economic, or social attributes in their legislated timeframes). Regulated programs are complex and take a long-time to set up, award contracts / incentives, approve contracts / incentives, and see the first projects get delivered. It is very hard to engineer regulated market solutions to work for every developer or type of project and the slightest design flaw breaks these programs or cause delays in implementation as fixes are made through the regulatory process.
3. Regulated policies reduce RPS compliance flexibility in future years by locking ratepayers into long-term liabilities that may not provide long-term cost savings if technology costs continue to decline.
4. Regulated policies introduced into any REC market retroactively harm existing investors to reward new investors. The issue with this is that many project owners, developers, and capital pools are the very same in both programs, which can lead to RPS integrity issues and capital risk premiums due to the perceived risk of regulatory change.
5. Poorly designed regulated market programs can increase ratepayer costs by harming retail supply markets and consumer choice and by displacing competitive and tradable REC markets.

Many jurisdictions have made the mistake of sacrificing the benefits of competitive REC markets for long-term contracting programs, which has come at the expense of undesirable environmental and economic impacts. It is also useful to note that well-designed RPS programs with tradable RECs already facilitate forward contract markets and bilateral long-term purchase agreements in the over-the-counter space. Today, New Jersey's RPS facilitates a robust forward market for its participants.

3) Based on your response to question 2 above, provide precise quantitative and qualitative recommendations as to how your preferred SREC Successor Program model would be implemented, keeping in mind the necessity of satisfying the "SREC Transition Principles" set forth above.

EMA recommends an open, competitive, and tradable SREC II program that is modelled after the existing NJ SREC program. The existing NJ SREC program has a floating and market-determined SREC price, in addition to an embedded long-term contracting program that is sleeved through the electric distribution utilities.

EMA's enclosed proposal should be considered a "framework" solution and includes an Excel-based model (Attachment A) that the BPU may use as a quantitative tool to perform scenario analysis on RPS program budgets when considering potential solutions. EMA would like to reiterate that it's primary goal is to offer the BPU various tools that it can use to fully comply with the Clean Energy Act so that a 50% by 2030 RPS becomes achievable.

EMA's Recommendation for a Tradable NJ SREC II Market Design

Best-practice tradable REC program designs are simple and easy to implement and can be engineered to be as cost-effective as the NJ BPU seeks while supporting other in-state economic criteria. A tradable NJ SREC II market should be structured according to EMA's best-practice design principles enclosed in these comments. Some design recommendations that will help facilitate liquidity in the over-the-counter SREC II market for long-term forward contracts that can be used for project finance and project development purposes, while at the same time protecting ratepayers from excessive investment relative to the standards, are:

- A competitive and tradable SREC II program with pricing that is allowed to float between $0 and the SACP depending on supply and demand dynamics,
- 100% of RPS obligations placed on third-party electricity suppliers, including BGS suppliers,
- A fixed and forward looking SREC II percentage requirement schedule out to 2030 at minimum,
- One overarching, fixed, forward looking, and sufficiently set solar alternative compliance payment schedule out to 2030 at minimum, and
- Automatic ratepayer refunding of all compliance fee payments so that any short markets that materialize do no harm ratepayers.

A Tradable NJ SREC II market could be structured to provide the following benefits:

- Effective deployment of solar energy resources and the achievement of legislated targets on time
- An open and inclusive market that does not discriminate against different kinds of market participants,
- A built-in ratepayer relief valve mechanism that allows pricing to fall when markets become oversupplied, and
- A requirement schedule that can begin in EY2021 and accommodate cost caps while promoting solar build in early years. For example, If the NJ SREC II schedule is set low in early vintages and then ramps aggressively in later vintages, the design feature of SREC banking can employ private pools of capital to carry compliance costs forward (from early years to later years) through the purchase and banking of SRECs. This can provide runway for Legacy SREC program costs to step down.

A tradable NJ SREC II approach is administratively simply to work with and will greatly accelerate the timing of program implementation.

EMA's Guidance on Embedded NJ SREC II Long-term REC-Only Contracts ("LTCs")

As discussed already, the EMA opposes the use of LTCs or feed-in tariffs for the achievement of RPS targets. However, if the BPU decides LTCs are worthwhile to pursue the EMA would like to offer the following design guidance so that minimal harm occurs to NJ's retail choice or competitive REC markets.

If LTCs are pursued, the EMA recommends embedding them into a tradable NJ SREC II program. This will greatly simplify the overall solar successor program design as there would only need to be one overarching NJ SREC II obligation on electricity suppliers, one NJ SREC II commodity product, and one overarching SREC II SACP schedule. Embedded LTCs could potentially reduce near-term RPS costs and alleviate budget concerns by setting low incentive caps for each solicitation and amortizing RPS costs over many years. The variability of these programs will also provide developers two options: (#1) compete for a long-term contract, or (#2) sell your SREC IIs in the bilateral SREC II spot and forward market.

The NJ SREC II REC-lifecycle flow under such an approach would be as follows:

- LTCs are signed and awarded but no RECs are produced yet,
- LTC projects COD and RECs are produced and delivered to the EDCs according to the LTC agreement,
- The EDCs aggregate LTC RECs and periodically auction them to EGSs, which have the RPS obligation, and
- EGSs purchase LTC RECs at auction and ultimately retire them for RPS compliance.

Visually, this would look as follows:

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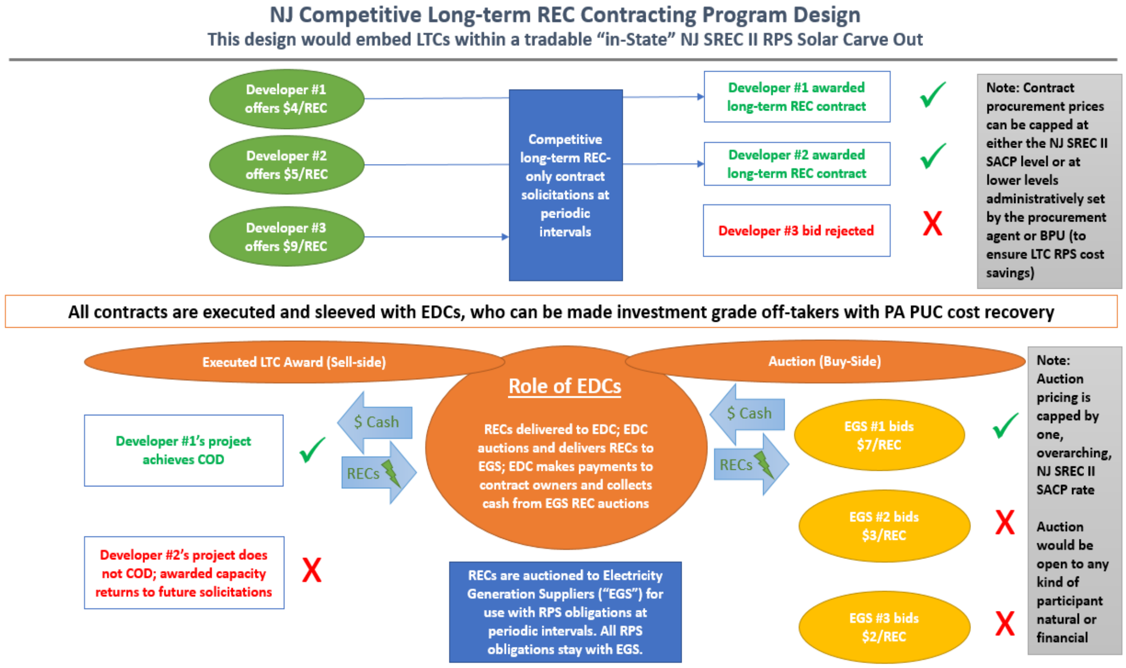


Information on EMA's Excel-Based Model

Regarding EMA's Excel-based model, it provides the NJ BPU the capability to understand and analyze:

- How the size of the NJ SREC II solar carve out % impacts the total cost of the Class I RPS through 2050 and how the Class I non-solar and non-OSW piece can be used to **contain ratepayer impact through the tradable regional PJM Tier I REC market,**
- How a tradable NJ SREC II program can **leverage private pools of capital to carry forward compliance costs** (withholding them from ratepayers until a future time) so that the NJ SREC legacy program can step down in and orderly and transparent fashion according to the existing SACP set by law,
- How Cost Cap savings can be **banked forward to provide smoother program operation** and more investment certainty on a forward-looking basis,
- How Cost Caps can **include externalities to make sufficient budget** for all programs under the 50% Class I standard, and
- How if the BPU concludes from its solar study that it wants to pursue long-term contracts, it can embed them in a tradable NJ SREC II program to lower costs in early years through amortization.

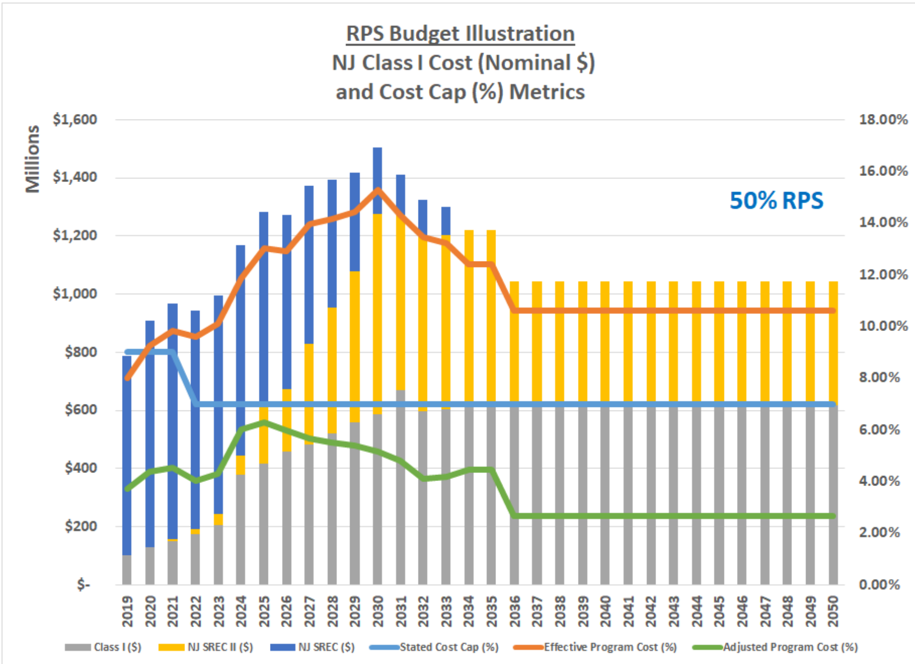
EMA's model does not:

- Assume the schedule and size of the NJ SREC II solar program, and therefore the Class I program indirectly, or
- Assume the schedule and size of the NJ Class I program beyond 50% due to ZEC and NJ Class II considerations as part of a 100% RPS.

EMA's model estimates:

- Future pricing for the Class I, NJ SREC, and NJ SREC II markets. Regarding the SREC II market, since the ITC is stepping down, it is critical to get a program in place that accommodates solar development costs without tax credits, and
- ACP and SACP schedules that are economically reasonable based on today's market conditions.

EMA's model produces information to understand the RPS budget available for all programs. The following graph represents one such illustration of program parameters:



EMA's "framework" solution is flexible enough to help the NJ BPU come up with the right approach to achieve every SREC Transition Principle:

- ✓ 1. Provide maximum benefit to ratepayers at the lowest cost;
- ✓ 2. Support the continued growth of the solar industry;
- ✓ 3. Ensure that prior investments retain value;
- ✓ 4. Meet the Governor's commitment of 50% Class I Renewable Energy Certificates ("RECs") by 2030 and 100% clean energy by 2050;
- ✓ 5. Provide insight and information to stakeholders through a transparent process for developing the Solar Transition and Successor Program;
- ✓ 6. Comply fully with the statute, including the implications of the cost cap; and
- ✓ 7. Provide disclosure and notification to developers that certain projects may not be guaranteed participation in the current SREC program and continue updates on market conditions via the New Jersey Clean Energy Program ("NJCEP") SREC Registration Program ("SRP") Solar Activity Reports.

4) How should Legacy SRECs be valued? Should these Legacy SRECs be valued under the SREC Successor Program or valued separately?

To avoid conflicts of interest among industry participants, EMA has no comment on this question except in relation to the NJ BPU's SREC Transition Principle #3: Ensure that prior investments retain value. EMA believes that Legacy SRECs must remain "deliverable" as NJ SRECs under any regulatory proceeding outcome. Any change to the ability of participants to deliver NJ SRECs into bilateral (over-the-counter) spot and forward sale contracts will cause the industry significant financial harm. EMA therefore strongly discourages any regulatory actions that would preempt or eliminate the "deliverability" of SRECs under the existing regulatory framework. For example, NJ SREC deliverability could be impacted by a modification of the program that retroactively eliminates the SREC program in exchange for a fixed fee, fixed tariff, or any other type of tariff-based program to compensate existing NJ SREC investors that does not involve the delivery of NJ SRECs. NJ SREC deliverability could also be impacted by subsuming the Legacy SREC program into a successor program which changes the nature of the NJ SREC "product" name or specification. This would cause substantial financial harm to NJ's solar energy industry overnight and would lead to significant solar job layoffs and irreversible harm to many solar energy project owners and developers. If NJ SRECs were to become "undeliverable" due to regulatory action, this would cause the NJ solar energy industry significant harm by impacting SREC forward sale contracts and project finance agreements. This would lead to significant contractual damages, the evaporation of contracted cashflow for projects already built, and investor defaults in the debt and equity space. This result would be counterproductive to the objectives and intent of SREC Transition Principles #3.

5) How should Pipeline SRECs be valued? Should these Pipeline SRECs be valued under the SREC Successor Program or valued separately?

a. Should the Board continue the current SREC program as a separate program? If so, how?

b. Should the Board include the current SREC program within the SREC Successor Program? If so, how?

To avoid conflicts of interest among industry participants, EMA has no comment on this question.

6) For any solar transition, should the Board set a megawatt ("MW") target for annual new solar construction? If so, should those targets be defined as percentage of retail sales or a set MW cap? Under what circumstances and/or assumptions is this target achievable?

See comments in question 7.

7) In any SREC Successor Program, should the Board seek to set annual MW capacity caps for new solar construction or percentages of retail sales? Why or why not? If yes, what should be the value through 2030 and why? If yes, should the Board seek to set differentiated capacity caps under the solar RPS based on project type?

Under question 2, EMA's recommendation encourages the NJ BPU to adopt a tradable NJ SREC II market using percentage-based RPS obligations on electricity suppliers that is modelled after the current NJ SREC program.

EMA then offers additional guidance on an LTC program design that is similar to the current SREC-based Financing Program[6] if the BPU decides to employ it. An embedded, competitive, and performance-based REC-only long-term contracting program can be modified to accommodate:

- MW targets (or MW capacity caps) for different solar project types. Meaning, the size and frequency of long-term contract procurements can be set by the NJ BPU to incentivize different types of projects or market segments that may be found to provide unique value to the State of New Jersey,
- Market-based or competitively priced procurement outcomes. Each segment or solicitation could have set maximum incentive caps (not to be confused with the NJ SREC II SACP schedule) to ensure cost-effective solicitations, and
- Cost recovery through long-term contracts and the amortization of RPS costs over many years to lower the near-term cost of the SREC II program.

EMA encourages the NJ BPU to think about how such a design could be compatible with the intent and / or outcome of the following study requirements required by the Clean Energy Act:

No later than 24 months after the date of enactment of P.L. , c. (C.) (pending before the Legislature as this bill), the board shall complete a study that evaluates how to modify or replace the SREC program to encourage the continued efficient and orderly development of solar renewable energy generating sources throughout the State. The board shall submit the written report thereon to the Governor and, pursuant to section 2 of P.L.1991, c.164 (C.52:14-19.1), to the Legislature. The board shall consult with public utilities, industry experts, regional grid operators, solar power providers and financiers, and other State agencies to determine whether the board can modify the SREC program such that the program will:

- continually reduce, where feasible, the cost of achieving the solar energy goals set forth in this subsection;

- provide an orderly transition from the SREC program to a new or modified program;

- develop megawatt targets for grid connected and distribution systems, including residential and small commercial rooftop systems, community solar systems, and large scale behind the meter systems, as a share of the overall solar energy requirement, which targets the board may modify periodically based on the cost, feasibility, or social impacts of different types of projects;

- establish and update market-based maximum incentive payment caps periodically for each of the above categories of solar electric power generation facilities;

- encourage and facilitate market-based cost recovery through long-term contracts and energy market sales; and

- where cost recovery is needed for any portion of an efficient solar electric power generation facility when costs are not recoverable through wholesale market sales and direct payments from customers, utilize competitive processes such as competitive procurement and long-term contracts where possible to ensure such recovery, without exceeding the maximum incentive payment cap for that category of facility.

[6] https://njsolarprogram.com/

8) In the SREC Successor Program, should the Board provide differentiated SREC or solar value incentives to different types of projects? Should such differentiated SREC compensation be created through SREC multipliers, through an add-on valuation, or through some other method? Based on what factor(s) should any SREC compensation be differentiated?

EMA discourages the use of SREC multipliers or administratively-determined add-on values in the successor SREC program since they distort the market pricing signal and reduce the integrity of the RPS by diluting the quantity of attributes needed to meet clean energy targets.

SREC factors would be a better method to use if the NJ BPU determined it necessary to award different types of solar projects different incentives under a tradable SREC II program. SREC factors could reduce program costs further and could negate the need for long-term contracting programs. However, SREC factors also add program complexity. To ensure there is no environmental attribute or economic waste, NJ Class I RECs should be awarded for the portion of production that does not receive an SREC.

9) How should the cost cap be measured? Should any "head space" under the cost cap in the first years be "banked"? Why or why not?

Measurement (Denominator): The percentage-based cost cap formula that the NJ BPU adopts should use total revenue from retail sales of electricity as the denominator to maximize the available RPS budget. Preferably, from a data source that is transparent and accessible to all market participants, frequently updated, and independently verified.[7] Also, since the adoption of in-state distributed generation lowers total retail revenue through the self-consumption of electricity, the value of these electricity savings should be estimated and added back to the total revenue from retail sales figure to represent a more accurate depiction of total revenue from retail sales and to expand the available RPS budget. The EMA believes this interpretation to be consistent with the Law's language, "of the total paid for electricity by all customers in the State." The numerator of the percentage-based cost cap formula will be commented on in question 10.

Head Space: The BPU could consider the banking forward of cost cap savings that are drawn down in future energy years where cost caps are exceeded. This could expand the RPS program budget, help reduce RPS investment uncertainty, and increase the probability that NJ's clean energy targets will be achieved on time, according to schedule, and in the most cost-effective manner.

10) Can and should the cost cap be determined based on net costs that include some type of valuation of associated benefits? If so, what should those qualitative and quantitative benefits be and how should they be assigned a value? If the Board can and should consider a net benefits test, should other cost impacts be included? Which ones? Why? If other cost impacts should not be included, why not?

The adoption of distributed solar generation at scale, as is occurring in New Jersey today, provides the State with real and positive externalities that could be valued and used to expand room under the cost caps.

[7] https://www.eia.gov/electricity/data/browser/#/topic/6?agg=0,1&geo=0004&endsec=vg&linechart=ELEC.REV.NJ-ALL.A&columnchart=ELEC.REV.NJ-ALL.A&map=ELEC.REV.NJ-ALL.A&freq=A&ctype=linechart&ltype=pin&rtype=s&maptype=0&rse=0&pin

Measurement (Numerator):

If the BPU decides to include externalities in the cost cap formula, they should be estimated on a $ per megawatt-hour ("$/MWh") basis and netted from RPS costs in the numerator. Using a $/MWh basis to measure benefits will be the most straightforward way to model how the MWh-penetration of solar in New Jersey delivers these benefits to the State. A $/MWh basis can be easily applied to the production of solar energy in New Jersey each energy year to calculate the benefits that are be netted from the cost figure in the numerator of the BPU's cost cap formula.

Although a different jurisdiction with different circumstances, Washington D.C.'s Office of the People's Counsel Value of Solar Study of Distributed Solar in the District of Columbia[8] could provide the BPU with a useful framework in which to understand how to identify and measure the benefits that are best suited for New Jersey. This report estimated the value of solar in the District to be in the range of $132.66/MWh to $194.40/MWh in 2015 dollars. Costs and benefits that the study identified were as follows:

Table ES-5. Potential distributed solar costs and benefits

Utility System Impacts	
Cost	Utility Interconnection and Operational Costs
	Increased Utility Administration Costs
Cost or Benefit	Distribution System Costs
	Ancillary Services
Benefit	Avoided Energy
	Avoided Transmission Losses
	Avoided Distribution Losses
	Avoided Transmission Capacity
	Avoided Generation Capacity
	Avoided RPS Compliance Costs
	Avoided Clean Power Plan Compliance Costs
	Avoided Carbon and Criterial Pollutants
	Energy DRIPE
	Capacity DRIPE
	REC SIPE
	Hedge Value
Societal Impacts	
Benefit	Outage Frequency Duration and Breadth
	Social Cost of Carbon

Even if the value of solar in New Jersey turns out to be a fraction of the District of Columbia's estimates, EMA's RPS model demonstrates that the State's cost cap constraints could be greatly relieved, thereby giving the BPU the ability to create sufficient RPS budget to accommodate NJ Class I, NJ SREC, and NJ SREC II program targets and re-instill investor confidence in the RPS..

In addition, the NJ BPU could take in to account general employment, tax, and economic investment benefits to the State that may not be captured in the benefits identified above. It is also useful to note that many NJ SREC compliance costs will directly represent savings to residents and businesses that adopt solar energy, which is capital that is retained in the local economy.

[8] http://www.opc-dc.gov/images/pdf/solar/Synapse-DC-Solar-Report-April1217.pdf

It is extremely important for the NJ BPU to fix the percentage-based cost cap flaw in the State's RPS design if the clean energy targets are going to be achieved. The more defined, transparent, and formulaic the cost cap solution can be, to meaningfully increase the RPS budget commensurate with the State's targets, the less the perceived regulatory risk of the cost caps will be and the greater the likelihood that the RPS will continue to facilitate private investment to achieve the State's RPS targets in the most cost-effective manner that is achievable under the State's RPS design (i.e., the cost-effectiveness of NJ's RPS in the long-run will be driven by the decisions and approaches that the BPU adopts in this regulatory proceeding. These decisions include how to close the current NJ SREC program, how to design a solar successor program, and how much to rely on the regional NJ Class I REC market to achieve the standards).

11) What steps should the Board take to implement the cost cap? In particular, please discuss the pros and cons of decreasing the Class I REC Renewable Portfolio Standards. Should any measures implemented differentiate among the different type of Class I renewable energy technologies? Should these measures differentiate among the different market sectors (e.g. utility-scale grid supply versus small residential systems)? Should these measures be technology neutral? Why or why not?

The EMA encourages the NJ BPU to recognize that the percentage-based cost cap is a severely flawed RPS design mechanism and to take steps to create an adequate RPS budget so that this eventuality does not have to occur. Otherwise, the State's RPS will not encourage the investment in the new renewable energy resources it requires to meet the 50% by 2030 target.

12) Should the solar industry transition into a true, incentive-free market as the costs of solar begin to approach "grid parity be a goal, or even a consideration, of the SREC Successor Program? If so, how can a SREC Successor Program assist that transition? Should a transition also encompass changes to the net metering program (cf. ongoing FERC/PJM review of DER aggregation)?

If the NJ BPU determines that the solar energy industry should one day transition into an inventive-free, or lower-incentive market, the EMA believes it is important that the State of NJ preserve and increase reliance on its competitive energy and tradable NJ Class I REC market policy foundations so that there are open and accessible markets for new solar energy resources if incentives step down. Given that federal tax credits will be expiring in the next few years, it cannot be emphasized enough how important this proceeding will be to renewable energy development in the state over the course of the next decade.

13) Please provide comments on any significant issues not specifically addressed in the questions above, making specific reference to their applicability in the New Jersey context. Please do not reiterate previously made comments.

Regarding the cost cap issue, EMA understands that percentage-based cost caps are law handed down by the NJ Legislature to the BPU for enforcement. That said, EMA still feels it important to share its perspective on what we believe to be an extremely misguided RPS provision. Percentage-based cost caps are worst-practice RPS design when it comes to cost containment. This is because percentage-based costs caps introduce investment uncertainty into a market-based policy mechanism which is fundamentally designed to leverage private investment (at the risk of private investors) for the achievement of legally established and enforceable clean energy targets. This provision increases the cost of capital required to achieve New Jersey's RPS, since participants must build in risk premiums to financial transactions since RPS requirements are not known with certainty to retail electricity suppliers, developers, or investors (i.e., they could be lowered in the future). This distorts the pricing signal the RPS is designed to provide through its tradable REC markets because participants are unable to model supply and demand and therefore unable to understand how much renewable energy needs to be purchased or developed. In New Jersey's case, although well-intentioned by its advocates, the introduction of percentage-based costs caps has severely damaged the RPS investment mechanism because they are not set high enough to accommodate competing legislative priorities (i.e., in-state jobs vs. cost-effective clean energy achievement). This has damaged liquidity in the NJ Class I and NJ SREC markets and has distorted the investment signal that developers, investors, and compliance entities rely on to fulfil the RPS. It is also extremely unfortunate that this provision was inserted into NJ's RPS right at the time New Jersey should be encouraging development of new resources that maximize federal resources available to New Jersey through the investment tax credit and production tax credit (which are declining year-over-year and will eventually expire). Percentage-based cost caps are the least effective RPS design provision when it comes to balancing ratepayer impact and RPS achievement.

Best-practice RPS design is that alternative compliance payment ("ACP") schedules are the sole form of RPS cost containment. Fixed and transparent ACP schedules provide a ceiling price on compliance costs, while providing the certainty the market needs to invest in resources that can take up to five years to develop. The use of tradable REC markets with pricing that is allowed to respond to supply and demand is the best way to contain ratepayer impact while achieving the standards. This is because tradable REC markets have an automatic cost relief valve – oversupply relative to the standards will cause pricing to decrease. The EMA believes it is a responsibility of market participants to manage price risk appropriately regarding development and investment decisions.

Appendix B – Best Practice Principles for Renewable Energy Certificate Markets

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The Environmental Markets Association (EMA) is focused on promoting market-based solutions for environmental challenges through sound public policy, industry best practices, effective education and training, and member networking. EMA represents a diverse membership including large utilities, renewable energy certificate (REC) traders and brokers, financial exchanges, law firms, project developers, investors, consultants, academics, non-governmental organizations, and government agencies. EMA strongly supports the utilization of markets to achieve environmental policy goals. Well-designed markets yield many benefits including, but not limited to, transparent price signals determined through competition, risk mitigation opportunities, incentives for technological innovation, efficient allocation of capital and resources, investor certainty, and ratepayer protection. In support of RPS objectives, EMA endorses the following set of Best Practice Principles for REC Markets:

Best Practice Principles for REC Markets

1. **Tradable RECs**
2. **Market-Based Pricing**
3. **Market Design That Fosters Transparency, Competition, and Liquidity**
4. **Market Oversight**
5. **Market Integrity and Stability**

In the case of Renewable Portfolio Standards (RPS), EMA believes that market-based programs will enable the most cost-effective, flexible, and innovative approach to maximizing renewable energy. EMA further believes that this is best accomplished through open, transparent, and competitive markets, and the use of tradable RECs as the primary means of RPS compliance. As such, well-designed RPS policies and REC markets offer stakeholders many advantages toward achieving their economic, social, and environmental objectives:

RPS Advantages from Best Practice Principles

- ✓ **Accountable Policy Objectives**
- ✓ **Pricing Transparency**
- ✓ **Compliance Flexibility**
- ✓ **Policy Cost-Effectiveness**
- ✓ **Ratepayer Protection**
- ✓ **Market Integrity & Stability**
- ✓ **Investor Certainty**
- ✓ **Information Feedback Signals**
- ✓ **Market Efficiency & Liquidity**
- ✓ **Financial Innovation**
- ✓ **Lower Costs of Capital**
- ✓ **Diverse Participant Bases**

For additional information about these Best Practice Principles for Renewable Energy Certificate Markets and their RPS advantages, please view our Supplemental Guidance Document for REC Markets here.

Appendix C – Supplemental Guidance Document

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1. Tradeable RECs

- EMA supports the use of tradeable RECs for renewable portfolio standard (RPS) compliance. Clearly defined tradeable RECs (e.g., by vintage period, useful life, resource and compliance eligibility) provide a means for facilitating commercial transactions through bilateral markets that enable participants to trade RECs on the spot market (for immediate delivery) and in the forward market (for future delivery). Spot markets facilitate the monetization of RECs. Forward markets facilitate the management of risk. Bilateral REC markets occur when participants trade directly among each other outside of a centralized procurement or auction process. RECs obtained at auction can be later resold through bilateral markets.
- Tradable RECs allow for market participants, who may not have entitlements or compliance obligations, to provide market liquidity and risk management services to those entities with future entitlements to the product (e.g., renewable resource developers) and to those entities with future compliance obligations (e.g., load-serving entities).
- Open and competitive REC markets attract a more diverse participant base, which in turn increases market liquidity. For renewable resource developers, this translates into more counterparties to purchase RECs. For compliance entities, this means more flexibility to procure RECs at times, and in volumes, that match RPS obligations. For all market participants, this results in more avenues to meet specific transactional needs and credit requirements. Open and competitive markets are essential to creating efficient REC price discovery and liquid trading on a forward basis (i.e., for future compliance vintages).

2. Market-Based Pricing

- EMA supports the price discovery of RECs through market-based mechanisms as opposed to the assignment of prices through administrative processes by government agencies. Collectively, REC trading participants will always have access to more information through markets. As such, the formation of REC prices should be driven by information and competition that accounts for the economic and risk preferences of market participants.
- Market-driven REC prices provide transparent and dynamic economic signals to participants for investment and resource allocation decisions. This enables efficient compliance by helping participants to dispatch the lowest cost solutions that fulfil the RPS.
- RPS design that allows for “floating” REC prices that can respond in real-time to new information is an important concept. Allowing prices to adjust in real-time to changes in supply and demand and other existing policies (e.g., the Public Utility Regulatory Policies Act, net energy metering, and tax law) guides

the market towards the most cost-effective achievement of RPS objectives. Benefits include ratepayer protection and the establishment of reference prices for financial innovation:

- Ratepayer Protection – While high REC prices are a signal to invest, low REC prices are a signal to slow the development of new resources vs. current RPS targets established by law. Allowing prices to fall when renewable technologies become cheaper, when other policy-based incentives are at play, or when markets become oversupplied is critical to protecting ratepayers from unnecessary or irresponsible investment and forces market participants to be more thoughtful about expenditures, risk management, and resource allocation. If investments exceed stated regulatory targets, or are negatively impacted by company governance or exogenous market factors, ratepayers are protected from investment losses. This supports overall market efficiency.
- Financial Innovation – Tradable RECs priced by vintage create reference prices for both physical and financial REC contracts (e.g., forward and futures contracts, respectively) that can be used to facilitate project investment through contracted revenue and to manage price risk. By helping to lower the risk of an economic activity, or by giving market participants tools to transfer risk, the availability of financial products can lower the cost of capital for renewable resource investments. This supports lower REC prices and lower RPS costs.

- Generally, the more compliance entities, producers, market makers, and financial participants that take part in a market, the more effective that market will be in facilitating price discovery, price transparency, market liquidity, and the efficient allocation of resources. Centralized compliance obligations with a single entity or a small group of entities should be avoided, if possible, to decrease the risk of market manipulation and increase market liquidity. Likewise, central procurement mechanisms that do not take advantage of the benefits from competitive market participation should be avoided or minimized.

3. Market Design That Fosters Transparency, Competition, and Liquidity

- Transparency, competition, and liquidity are mutually reinforcing market phenomena that will help promote the cost-effective achievement of RPS policies. The more cost-effective resources become at fulfilling RPS targets, the higher that RPS targets can be set without adversely impacting ratepayers.
- EMA supports market design features that create transparent and reliable price signals capable of facilitating market or auction objectives that channel RECs to participants who most highly value them.
- RPS design components should ensure that all participants have both an incentive and interest to ensure that efficient price discovery occurs and is revealed to the market in a timely and transparent manner.

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- If design components include features such as price boundaries, such as alternative compliance payments (ACPs) or price floors, such features must be transparent to market participants on a forward-looking basis, must facilitate competitive market outcomes, and must support the integrity of the market. Statutory price floors in and of themselves will not necessarily support pricing or liquidity in an oversupplied market without an additional back-stop mechanism or capitalized facility.
- EMA supports market design that enables diverse participation and competition in environmental markets, since a competitive market reduces liquidity risk and ensures that no one entity can unduly influence the market.
- Any regulation should be carefully evaluated as to its impact on market liquidity, transparency, competition, and costs to participants. EMA does not support efforts to limit participation in REC markets or REC auctions to only those entities with compliance obligations.

Key RPS Design Components and REC Market Features	
RPS Component	**REC Market Feature**
REC Tier / Class Product Definitions	▪ REC tier / class product definitions include technology type, generator vintage (i.e., online) eligibility dates, and other environmental attribute considerations. ▪ REC tiers within an RPS should be clearly defined to distinguish between existing and new entry renewable resources, which may require different revenues to adequately account for different cost-recovery rates. ▪ Each REC tier will have its own distinct REC market if it has a unique ACP schedule and requires obligated entities to fulfill compliance targets with REC purchases. Although REC tier pricing may be influenced indirectly by other REC markets in jurisdictions that have resource eligibility overlap, it will exhibit unique supply / demand fundamentals and price signals to market participants. ▪ If separate RPS tiers are created to support less commercialized technologies, or to accelerate already commercialized technologies that provide unique RPS benefits, these tiers should be additional to other technology tiers and each tier should deploy best practice market design principles if possible and cost-effective. ▪ REC standard of units (e.g., megawatt hours of power generation per single REC issuance) should be clearly defined and to the extent possible, standardized with adjacent RPS jurisdictions. ▪ REC tiers should be clearly defined as to whether they are carve outs of another tier, or a set aside (an additional, cumulative, target) within the overall RPS.
Vintage Periods	▪ Vintage period should be clearly defined in regard to the span of dates in which generation from an eligible resource can issue a compliance-eligible REC for use in a particular compliance year(s). Calendar Year and Energy Year is common. ▪ Vintage-based compliance periods ensure RPS policy accountability through periodically verified REC retirements (annual retirements are encouraged).

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Compliance Eligibility	▪ REC tiers should be clearly defined in regard to which resources can generate compliance-eligible RECs for compliance. ▪ Compliance-eligible REC vintages for a given reporting year (e.g., RY2018) should also be clearly defined (this is often referred to as REC banking or useful life). ▪ Compliance due dates for REC retirements should be clearly posted and have administratively straightforward reporting processes. ▪ ACP payments should be required in a timely manner following the end of an RPS compliance requirement year.
Resource Eligibility	▪ Broad RPS technology eligibility among a diverse array of clean energy technologies is encouraged. ▪ The more technologies that are RPS eligible, the greater the number of potential REC producers in a market and the greater the competitive pricing benefits (e.g., economic and employment) across multiple industries. Allowing multiple technologies to compete for grid access also supports electrical grid fuel diversity and resiliency. ▪ Resource eligibility has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule. ▪ The number of vintage periods a generator is certified to issue RECs for RPS compliance within a particular REC tier (sometimes referred to as "qualification life"), should be clearly defined in advance, even if only to confirm that no vintage eligibility limitations apply to RECs issued by RPS certified generators. ▪ Generator vintage eligibility (the date in which a generator is considered to have come on line for the purposes of an RPS) should be clearly defined for each REC tier within an RPS.
Geographic Eligibility	▪ Geographic, or jurisdictional, eligibility of renewable resource generators should be clearly defined for each REC tier. A narrow definition of geographic eligibility is in-state located resources. A broad definition is national eligibility. Variations exist for adjacent state and regionally located resources. ▪ Geographic eligibility has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule. ▪ REC import eligibility (with or without the energy transfer) has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule.
Fixed RPS Compliance Targets and Forward-Looking RPS Schedules	▪ First, RPS compliance schedules should be fixed at pre-set percentage levels of retail electricity sales in advance of compliance years. EMA recommends that RPS targets (and therefore compliance action) step up annually according to a pre-set schedule that is transparent to market participants. Percentage-based targets ensure that REC demand is responsive to load variation, which provides an additional cost-containment mechanism to ratepayers in the event of load decline or ensures that as load grows so does the mix of renewable resources and associated clean energy benefits.

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	▪ Second, RPS compliance year schedules should have tenor (i.e., be transparently established as far into the future as possible) to support long-term market and investment certainty. This creates transparency and is important to enabling tradability and investor confidence. ▪ Third, RPS target terminal years (sometimes referred to as sunset language) should be clearly defined. Terminal year RPS targets should always be maintained at their final levels (i.e., the procurement percentage should not drop down to zero or begin to decline once achieved) to ensure that RECs generated from investments post the last compliance year can continue to be sold and delivered to compliance entities and that the overall penetration of renewables in the electricity mix continues to comply with the law. ▪ Fourth, under no circumstances should a compliance year's RPS target ever be set lower than any previously established compliance year target.
Fixed Alternative Compliance Payment (ACP) Rates and Forward-Looking ACP Schedules	▪ ACP mechanisms are a pre-requisite for REC market trading and timely, accountable, RPS compliance, since they create penalties on obligated entities for failing to procure and retire RECs. ▪ ACP rate schedules should be forward-looking and align with the RPS compliance year schedules (on a vintage-by-vintage basis) to support long-term market certainty. This creates transparency and is important to enabling investor confidence, a lower cost of capital, and cost-effective RPS achievement. ▪ ACP rates should be fixed and set at sufficiently high enough levels that both encourage renewable energy investment and market tradability / liquidity. High ACP rate schedules should not be interpreted to imply high RPS compliance costs. ▪ Whenever possible, ACP rates should be set at levels which reflect regional circumstances to address REC shuffling / attrition between RPS jurisdictions. ▪ ACP payments should also be required after each compliance year and payments should be required in a reasonable timeframe. ▪ Non-published ACP schedules, or opaque formulas pegged to complicated calculations or market pricing, creates market uncertainty and should be avoided. ▪ ACP rates should be the only cost-containment mechanism built into an RPS. Other forms of cost-containment mechanisms, such as when an RPS freeze is tied to electricity price increases beyond a certain percentage threshold create considerable investment uncertainty and should be avoided. ▪ Reductions to ACP schedules post establishment is strongly discouraged. If ACP schedules are adjusted downward, considerable thought should be given as to the lower ACP schedules impact on pre-existing investments and forward sale REC contracts (which may become invalidated by change-in-law provisions). ▪ The general use of ACP proceeds should be disclosed to market participants. Policymakers that want to limit the impact of ACP payments on ratepayers can implement a pro-rata bill credit based on total ACP proceeds to ease RPS costs in short supplied markets.
Applicable Electricity Sales and Exemptions	▪ Applicable retail sales, exemptions, and the obligated entities required to procure for RPS compliance should be clearly defined.

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	▪ Generally, electricity exemptions, which reduce total applicable retail sales applied to RPS requirements, weaken demand for renewable resources, may create uncertainty in calculating REC demand, and may mislead the public about published RPS targets.
REC Banking (Useful Life)	▪ Clearly defined banking of RECs (useful life) is encouraged. Banking of RECs helps facilitate a more efficient market by ensuring that RECs issued in previous years maintain value long enough for participants to transact them. o For producers, this gives them the option to hold RECs into fundamentally short years, which defers current cashflow in exchange for the potential to earn a higher price later. o For compliance entities, this gives them the opportunity to bank lower cost RECs from oversupplied years into fundamentally undersupplied years, thereby providing the option to manage their compliance costs in response to the market environment or specific capital / credit constraints.
REC Multipliers, Factors, and Forward Crediting (Borrowing)	▪ Multipliers provide higher incentives to projects through awarding each megawatt hour of generation a greater proportional amount of RECs. All else equal, this increases the amount of revenue a project receives for the same unit of production, but dilutes published RPS targets and may lower REC pricing through increased supply. The use of REC multipliers should be weighed against the potential for market distortion and decreased market liquidity. ▪ Factors provide lower incentives to projects through awarding each megawatt-hour of generation a lower proportional amount of RECs. All else equal, this lowers the amount of revenue a project receives for the same unit of production. Factors have the potential to create economic attribute waste (i.e., clean energy generation that does not count towards RPS achievement but still provides environmental benefits) if the non-factor proportion of generation cannot issue other RECs saleable for RPS compliance. REC factors should be avoided if they apply to the main, or overarching, tier of an RPS. ▪ Multipliers and factors must be considered carefully as they have wide ranging impacts on different project segments (e.g., utility, commercial, residential). If implemented improperly, they can distort market pricing and make the market allocate capital less efficiently, meaning power purchasers (and ultimately end-users or ratepayers) pay more for electricity. In practice, this can cause expensive projects to deploy at the expense of economically more efficient new entry units (for example, smaller but higher cost projects which have access to net energy metering at retail rates vs. larger but lower-cost projects with economies of scale that must compete in the wholesale markets). Multipliers can end up weakening overall RPS targets if implemented poorly. ▪ Forward Crediting, or the borrowing of RECs from future production periods that can be sold today, distorts market pricing and should not be deployed in any environmental market. Since REC issuance and cashflow would occur upfront with forward crediting, this decreases the incentive to maintain the project and increases the risk that the project will not deliver its RECs for future RPS compliance. Forward crediting runs the risk of creating an artificially

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	oversupplied REC market with lower prices that subsequently damages the investment signal participants require to develop new resources.
Long-term Contracting Programs	▪ Tradable RECs and long-term contracting programs can successfully coexist; however, long-term contracting programs should not be legislated in replacement of, or at the expense of, open and competitive tradable REC markets that go above and beyond the designated contract volumes in the long-term contracting programs. ▪ Long-term contracting programs that award a REC offtake contract in advance of when a generator comes online should make sure that adequate financial security is posted until the project comes online. This will discourage bidders from bidding into procurements with unrealistic economic assumptions that tie up scarce resources (i.e., contract awards) that may prevent other, more viable, projects from being developed.
RPS Reporting	▪ RPS compliance reports should be written and released to the public for each requirement year on a timely basis. Wherever possible, RPS compliance reports should provide sufficient data (e.g., on applicable retail electricity sales and exemptions, RECs retired, RECs banked forward, etc...) that is helpful to participants in assessing the status of the RPS and its REC markets.
Interaction with Compliance Carbon Cap-and-Trade Programs	▪ REC markets and carbon allowance / carbon offset markets can coexist in the same jurisdictions. Current best practice keeps fungibility separate (i.e., RECs cannot be used for carbon market compliance and carbon allowances / carbon offsets cannot be used for RPS compliance). Clear and thoughtful definitions of which environmental attributes are embodied by each environmental commodity can help eliminate confusion between market participants and regulators while promoting market liquidity.
Private Investment	▪ Market design should foster private investment and market participation. ▪ Leveraging private investment and capital markets in achieving RPS policy is important. Well-designed RPS policies and competitive REC markets will shift investment risk away from ratepayers or taxpayers to private investors. If a project fails, it does not receive cost-recovery through REC payments (because it does not generate any RECs). If a project receives a lower investment return because of overly optimistic REC price forecasts, ratepayers are shielded from this economic miscalculation.

4. Market Oversight

- EMA supports clearly-defined independent market oversight, with stakeholder input, to maximize the benefits of competitive commercial behavior in achieving policy goals and providing transparency, while guarding against fraud and manipulation and minimizing systemic risk. Successful RPS design must include measures that protect the market from activity that is illegal or detrimental to the market's function.

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Best Practice Principles for Renewable Energy Certificate Markets

- EMA supports independent oversight of the market structure and operation, which may include periodic review, and as needed, recommendations with stakeholder input for addressing any identified market design flaws.
- Over-the-counter spot and forward REC contracts currently qualify for the forward exclusion definition of a "swap" under the Commodity Exchange Act (CEA) if intended for physical delivery. As such, RECs are classified as non-financial commodities by the Commodity Futures Trading Commission (CFTC) and regulated accordingly under the CEA. Financial REC futures and options contracts are regulated by the CFTC and must trade on an approved commodity exchange.

5. Market Integrity and Stability

- RPS laws, regulations, and regulatory guidance documentation should strive to maintain the integrity of REC markets and RPS policy in all aspects. Long-term regulatory and policy certainty will allow a robust market-based system to evolve with healthy price discovery and liquidity. Flawed market design rules, even minor ones, can have a harmful impact on market liquidity and increase RPS compliance costs. When establishing and enforcing local preferences (e.g., resource eligibility, generator vintage eligibility, biomass emissions limits) regulators should be careful not to interfere directly with a market's price discovery process. RPS frameworks mobilize private investment that generates environmental and economic benefits. Long-term certainty and stability in the political institutions can help lower the cost of capital by instilling integrity in the regulatory commodity.
- Frequently changing rules creates investment uncertainty and can stifle market development. Regulatory policy changes that are applied retroactively to a market (such as the lowering of an ACP schedule once established or the retroactive decertification of previously qualified RPS generators) damage investor confidence and should be avoided. Vague or ambiguous regulatory language also damages investor confidence, all of which increases the cost of capital for renewable energy investments.
- High, low, or volatile REC pricing, at points in time, should not be interpreted as a sign of market failure. Prices, in essence, represent information. In competitive tradable markets, when information changes, prices change. Indeed, price fluctuations are an indication of a healthy market that is responding to information and adjusting to changing operating conditions. When RPS policies are well-designed, high REC prices will encourage the development of new renewable energy resources that in turn eventually lowers market pricing and vice versa.

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Supplemental Guidance Document
Best Practice Principles for Renewable Energy Certificate Markets

- Tradable RECs support accountable policy objectives and information transparency by ensuring that RPS achievement is measured, tracked, and reported on in a timely manner. EMA supports the usage of secure and robust tracking mechanisms and methodologies to provide certainty of REC ownership. Well-implemented REC registry systems will avoid double counting of RECs and the dilution of RPS benefits. Failure to implement a system to track ownership of environmental compliance products can undermine the success of the market. Developing such registry mechanisms and methodologies must be a part of the market design process and must be completed prior to implementing any new REC market. Any issues with attribute ownership, claims of benefits, or means of tracking the RECs must be clarified before the start of any program. Failure to do so can greatly undermine confidence in the market, stifle liquidity, and hinder the program's full potential of benefits.
- EMA supports legislative, regulatory, and rulemaking efforts to establish stable, clearly-defined, and transparent market regimes. EMA promotes the inclusion of experienced market participants at all stages of the development process and post-implementation market review process in order to contribute to the overall strength and vibrancy of the markets. Both the design process and the post-implementation review process must be transparent to all stakeholders.
- Maintaining market integrity is the responsibility of both market participants and regulators.

About EMA

EMA is a U.S.-based trade association representing the interests of companies that are involved in the trading, legislation, and regulation of environmental markets. EMA was founded in 1997 as a 501(c)(6) not-for-profit organization. Our members have decades of extensive, first-hand experience with market instruments related to Federal and regional cap-and-trade programs in SO2, NOx, and GHG emissions as well as state-driven RPS programs throughout the U.S. The EMA represents a wide variety of participants in the clean energy markets, from utilities and load-serving entities to renewable project developers and investors. EMA members have extensive operational experience with RPS compliance, REC trading, and renewable energy investment and, collectively, have made significant historical contributions to achieving state RPS targets. The EMA has a vested interest in the continued success of market-based mechanisms and RPS programs throughout the U.S. and encourages active discussion and collaboration among all industry participants. Inquiries about the EMA, or these Best Practice Principles for REC Markets may be directed here.