Mid-Atlantic Solar & Storage Industries Association
Rutgers Eco-Complex, Suite 208-8
1200 Florence-Columbus Road, Bordentown, NJ 08505 | info@mseia.net

September, 2020

Ms. Aida Camacho
Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Trenton, NJ 08625

Via email to:
board.secretary@bgu.nj.gov
with copy to:

Re: Docket No. QO20020184
Solar Successor Program

Dear Ms. Camacho-Welch:

The Mid-Atlantic Solar & Storage Industries Association (MSSIA) is pleased to present these comments in regard to the above-referenced notice.

MSSIA is committed to engaging with BPU staff and commissioners to make the Successor Program successful in meeting the solar capacity goals as stated in the Straw Proposal, the Energy Master Plan, and the Integrated Energy Plan; in achieving the lowest possible impact on rates – and bills – consistent with meeting the capacity goals; and in creating jobs and economic growth.

MSSIA's detailed comments in this document are accompanied by extensive analysis, attached separately, and backed by as much data and research as could be gathered in the available time, much of which is presented and/or attached. Further study is ongoing on certain topics, which will be identified herein.

MSSIA comments are the result of dozens of conversations and meetings among MSSIA member companies and MSSIA Board members. However, these comments do not all necessarily represent the positions of all member companies.

A summary of the key points is presented below.

SUMMARY OF KEY POINTS

- MSSIA believes that the Straw Proposal presents a framework for solar incentives and growth in solar development that, in concept, is well-designed to accomplish the program goals and

reduce rate impacts. Regarding the program framework, MSSIA suggests a few tweaks, as explained below.

- MSSIA believes that the Straw Proposal's proposed $85 incentive for net-metered projects and $90 for community solar LMI projects for administratively-set incentives is **too low** to drive significant solar development. We believe that the proposed incentive levels will result in failure to achieve the intended program goals as expressed in the Straw Proposal, and will also result in significant job losses, solar business decline, and movement of solar businesses and investment out of New Jersey. MSSIA also believes that a greater degree of differentiation of incentives is required by project type and size, and perhaps by utility company (if feasible).

- MSSIA conducted an extensive modeling effort to determine the incentive levels required for different project types and sizes, and different utility territories. MSSIA conducted the modeling with side-by-side model runs using the NREL System Advisor Model ("SAM model"), which was the model used by BPU consultant Cadmus in their modeling, and the model used by the author's company, Advanced Solar Products, to assess projects for investment and for competitive bidding ("ASP model"). The side-by-side modeling runs of the SAM model and ASP model were run with identical inputs. Part of the purpose of the modeling effort was to assess whether differences in the SAM model itself vs. the ASP model were responsible for different outcomes between Cadmus' and MSSIA's modeling, or the differences were due to differences in the inputs and targets used by Cadmus vs. MSSIA. With identical inputs, the two models were in reasonable agreement, with only relatively small differences for most cases.

- Certain important assumptions used by Cadmus in modeling the required incentives are at odds with the actual conditions in the solar development environment. These include unrealistic assumptions regarding solar system performance and weather; project costs, in particular total acquisition cost; the electric price discounts required to attract customers for third-party ownership (TPO) projects; the target rates of return for those TPO projects; and the required payback times required to attract customers for direct ownership (DO) of projects.

  In addition, certain policy positions taken by BPU staff in the modeling process are contrary to the solar industry's ability to continue development in New Jersey. These include the decision to choose modeling results for each market segment that are the lower of the TPO modeled incentive or the DO modeled incentive. This policy decision, along with the problems with the inputs and targets in the modeling, guarantee an unworkable incentive program.

- The experience of the Transition Program provides a clear benchmark for incentive levels that work and those that do not work. In particular, the virtual collapse of the non-residential ground mount market segment shows that the $91 TREC is inadequate to drive development in that important segment. Furthermore, since roof mounts usually require a slightly higher incentive than ground mounts, clearly the non-residential roof market segment would not work at a $91 incentive level either. And clearly carports would not work. In other words, no part of the non-residential market – commercial, industrial, and public projects – could proceed with a $91 incentive, let alone an $85 incentive.
- The experience of the Transition program also provides a clear benchmark for the residential segment – the most potent creator of small business growth, local jobs, and opportunity for homeowners in the solar program. The $91 incentive level for residential resulted in a sharp

decline in residential development in 2020, when the rest of the country was experiencing a substantial increase. Although the previous four years also showed a decline, that was not a trend, but rather a temporary result of the bankruptcy or reorganization of four of the largest national companies. When the decline or collapse of the those four companies is excluded, the rest of the residential solar companies in the state achieved steady growth during the same period, 2016 to 2019.

- MSSIA believes that the required incentive, with the least degree of differentiation, for Residential is $95; for Commercial & Public is $110; and for Community Solar is $100.

- MSSIA recommends that desired land use projects should include contaminated sites (landfills & brownfields), floating PV, and dual-use agricultural PV. MSSIA recommends that these project types be allowed to participate in the administrative program, with an adder to make up for their higher cost.

- MSSIA recommends that for the first year, half of the competitive tranche reserved for desired land use projects be moved over to the administrative program, both to enable continued development of the desired land use projects while the competitive solicitation program is being set up, and to provide a more stepped change for the solar industry from commercial & public work to grid supply work.

Initial Comments Regarding Affordability

Before beginning MSSIA's specific comments in regard to the Successor Program and answering staff's questions, we wish to address the underlying issues regarding the affordability of the Program. There was much discussion about such issues in the workshops held by BPU in recent weeks.

MSSIA has been conducting research and analysis in recent years on several topics that bear on the issue, and wishes to discuss some results of those investigations. Topics covered below and in attachments include:

1. Current Electric Costs – how does New Jersey rank compared to other states in:
    a. Rates
    b. Bills (Electric expenditures per capita)
    c. Affordability (percent of personal income spent on electric energy)

2. Costs and Benefits of solar, and of all green energy programs in New Jersey

3. How do consumers fare on the road to achieving 100% renewable electricity by 2050?

1. Current Electric Costs – How does New Jersey rank compared to other states: Rates, Bills, and Affordability

The attached MSSIA analysis, "New Jersey Electricity – Cost, Bills, and Affordability" presents data from the US EIA and the Bureau of Economic Analysis sorted by state to form a ranking, along with calculations combining those data. The analysis ranks states according to several measures:

1. Electric **Rates** – Average Retail Price of Electricity by state as reported by US EIA for 2020.

2. Residential Electric Usage per Capita (in KWH per year) – Divides Retail Sales of Residential Electricity by state (US EIA), by population (US Census Bureau).

3. Per Capita Expenditures on Electricity (a measure for comparing average **Bills**) – Usage per Capita multiplied by Rates.

4. Per Capita Expenditures on Electricity as Percent of Personal Income (a measure for comparing **Affordability**) – Divides Per Capita Expenditures above by Average Personal Income by state (Bureau of Economic Analysis).

The resulting rankings are as follows:

Rates: New Jersey ranks 10th out of the 50 states and D.C. All the other states in the Northeast have higher rates than Jersey, except Maine, which is very slightly lower than Jersey.

Bills (Per Capita Expenditures on Electricity)**: New Jersey ranks 30th** due to its low average usage. Being more *efficient at using* energy helps keep bills low in states like New Jersey and California.

Affordability (Percent of Personal Income Spent on Electricity)**: New Jersey ranks 45th.** The national average percent of personal income spent on electricity is 0.79%. New Jersey's percent of income spent on electricity is 0.61%, placing it near the bottom of all US states and D.C.

The New Jersey rankings have actually fallen since MSSIA began periodically performing this analysis, perhaps reflecting the steady decline in electric rates over the past 20 years, coupled with the states efforts to increase energy efficiency. The state's rankings indicate that its electric power – which *already includes costs for solar energy* with one of the largest solar programs in the nation – is still more affordable than in the great majority of other states.

The question remains, what will happen to rates and bills in the future, through 2050 as the state transitions to 100% renewable electricity? Will consumers' electric bills remain affordable? For the past three years, MSSIA has been researching and analyzing this question as a follow-on to Clean Power Research's study, "The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania". That study took a comprehensive look at a range of electric market savings, as well as benefits external to the electric market, resulting from large-scale solar development.

MSSIA's current analysis, "Cost, Benefits, and Rate Impacts of Green Energy Programs – 2021 to 2050", is preliminary, with additional refinement ongoing. The analysis is attached. It must be noted that some projections of the future are in areas that have not been well studied yet. For instance, the costs involved in upgrading New Jersey's electric grid infrastructure to make it renewable ready have not been studied. Similarly, the amount of battery storage needed to support reliable power in a 100% renewable environment has not been studied. Questions like these require a comprehensive "pathways study" that shows the optimum mix of measures specific to New Jersey for it to achieve its 100% renewable goal at the least possible cost. At this time, substantial uncertainty exists regarding such potential costs. Accordingly, MSSIA made what it believes to be conservative assumptions in

several cost areas. Similarly, MSSIA used some sources for the benefit calculations that are more conservative than the Clean Power Research study.

MSSIA studied the effects not only of solar power alone, but also a range of other green energy initiatives. The analysis includes:

- The legacy SREC Program
- The Transition Incentive Program
- The Successor Program
- Offshore Wind
- Class I RECs
- Nuclear power (ZECs)
- Energy efficiency programs and demand-side management
- Energy storage
- EV infrastructure
- Grid infrastructure upgrades to accommodate high-penetration renewables

The results of the analysis indicate that rates can be expected to change very little between now and 2050 as a result of solar energy and the other green energy initiatives. For solar only, year-on-year electric rates, from now through 2050, are expected to drop slightly on average, by 0.04 cents per KWH per year. If solar were the only green energy initiative, and no energy efficiency gains are expected, then residential bills would be expected to drop by $0.35 per month on average between now and 2050.

In the solar-only scenario, other benefits like the avoidance of the social cost of greenhouse gases and criteria pollutants, job creation and economic growth, etc., conservatively are expected to contribute benefits valued at an additional $3.78 per month per household in 2021, rising to $71.57 per month by 2050.

If all of the aforementioned green initiatives are taken into account, the average drop in rates is expected to be 0.03 cents per KWH. Typical bills are expected to be reduced on average by $1.19 per year due to the green programs, so cumulatively by 2050 bills will have been reduced by $34.57 due to green programs. The other, non-electric-market benefits are expected to contribute an additional $6.12 per month per household in 2021, rising to $163.21 by 2050.

Several known benefits of solar, offshore wind, energy efficiency, and electric vehicles have not been considered yet due to lack of sources and lack of time.

These results are consistent with numerous other cost-benefit studies of solar energy and other renewables.

This is good news. It indicates that consumers can not only have a livable world in 2050, but in the process can enjoy reductions in their electric bills and other valuable benefits.

MSSIA's detailed responses to staff questions are shown below in blue font after each of the questions.

Section III: Staff Recommendations: Successor Program Incentive Design

Overall program design: Staff proposes to establish a bifurcated Solar Successor Incentive Program in which residential projects, community solar projects, and non-residential net metered projects 2 MW or smaller are offered an administratively set $/MWh incentive. All other projects would participate in the competitive solicitation.

1. Please comment on the benefits and consequences of this suggested division. Does this program design provide a pathway to maximizing solar development while minimizing ratepayer costs and supporting the industry? Please explain and include alternative suggestions if you believe there is a better approach that Staff should consider.

First, MSSIA appreciates staff's update in the May 7 Memo changing the non-resdidential upper limit in the administratively-set program to 5 MW. MSSIA agrees with staff that the larger projects should be set at a lower rate, which MSSIA believes should cover projects 2 MW to 5 MW. MSSIA presents a proposed lower rate in its recommendations for incentive levels in these comments and the attachments.

Administratively determined incentive for small net metered and all community solar projects

2. Please comment on the proposed breakdown of market segments in the administratively set program (e.g., net metered residential, net metered non-residential rooftop and canopy, net metered non-residential ground mount, community solar, and LMI community solar). Would you suggest any changes, and if so, why?

MSSIA believes that a greater degree of differentiation of incentives is required by project type and size, and perhaps by utility company (if feasible). On the other hand, differentiation between non-residential roof and canopy vs. non-residential ground mount does not seem to be necessary. MSSIA modeling and the modeling by Cadmus do seem to agree on one point – that Commercial & Public rooftop and ground mount project require similar incentive rates. In fact, some of the Cadmus estimates showed higher incentive rates for roofs than for ground mounts in the same size range, and some showed the reverse.

MSSIA recommends the following breakdown by market segment, putting together projects of similar type and economic character:

ADMINISTRATIVE PROGRAM
Residential
Small non-residential (<350 KW, net metered or grid-connected)
Medium non-residential (350 KW to 2 MW, net metered or grid-connected)
Large non-residential (2 MW to 5 MW, net metered or grid-connected)
Community Solar

COMPETITIVE PROGRAM
Basic Grid Supply
Desired Land Use Grid Supply

3. As currently proposed, all net metered projects in the administratively set program would qualify

for an incentive of $85/MWh for the first three-year period (EY 2022-2024); community solar projects would qualify for an incentive of $70/MWh, and community solar LMI projects would receive an incentive of $90/MWh. Please comment on these proposed incentive levels and if you disagree, please reference specific concerns with the modeling or historic performance assumptions used to develop the proposed levels.

MSSIA believes that the Straw Proposal's proposed $85 incentive for net-metered projects and $90 for community solar LMI projects for administratively-set incentives is too low to drive significant solar development. We believe that the proposed incentive levels will result in failure to achieve the intended program goals as expressed in the Straw Proposal, and will also result in significant job losses, solar business decline, and movement of solar businesses and investment out of New Jersey.

MSSIA conducted an extensive modeling effort to determine the incentive levels required for different project types and sizes, and different utility territories. MSSIA conducted the modeling with side-by-side model runs using the NREL System Advisor Model ("SAM model"), which was the model used by BPU consultant Cadmus in their modeling, and the model used by the author's company, Advanced Solar Products, to assess projects for investment and for competitive bidding ("ASP model").

The side-by-side modeling runs of the SAM model and ASP model were run with identical inputs. Part of the purpose of the modeling effort was to assess whether differences in the SAM model itself vs. the ASP model were responsible for different outcomes between Cadmus' and MSSIA's modeling, or the differences were due to differences in the inputs and targets used by Cadmus vs. MSSIA. With identical inputs, the two models were in reasonable agreement, with only relatively small differences for most cases.

The experience of MSSIA companies in the New Jersey market, and the experience of other solar companies with whom MSSIA has communicated, indicates clearly that several inputs and targets used by Cadmus are at odds with the reality of solar development. Additionally, BPU staff policy positions regarding the inputs and targets are problematic. The primary issues are:

1. Performance: The performance numbers used by Cadmus are higher than is being measured in operating projects throughout New Jersey in recent years, PJM GATS data corroborates this. Investment companies pricing projects for purchase are requiring PVSYST modeling using up-to-date weather files that also reflect lower levels of sunlight, as well as some conservative loss assumptions. These requirements bring investors' and financers' terms for purchase and financing in line with the historic performance of New Jersey projects. Cadmus' performance numbers, which are modeled by SAM, are substantially higher than those real-world values.

2, Cost: The BPU policy of using the 50th percentile to estimate costs can be expected to under-incentivize 50% of potential projects, at best. This alone would make it unlikely that the solar industry could achieve the targets set for the Successor Program. But in addition, it is our understanding that the cost data used by Cadmus included only the construction cost, but not the development costs of projects. Investors in projects, obviously, have to pay the total acquisition costs including the development costs, so modeling without using total acquisition costs will produce erroneous results.

3. Customer discount for third-party PPA's: In the experience of MSSIA and its members, the rate discount that is necessary to acquire customers is 25% to 30%. Customers are making a big, long-term commitment of their properties which include long-term restrictions, visual changes, and risks. There is also the time and hassle associated with researching, contracting, and executing on a project. There needs to be

4. Payback for direct ownership.

MSSIA's modeling indicates that the following incentive levels are needed to drive development to levels at or near the Straw Proposal's goals:

Residential	$ 95
Small & Medium Non-Residential (0-350 KW and 350KW-2 MW)	$110
Large Non-Residential (2 MW-5 MW)	$100
Community Solar, LMI	$100
Adder for Desired Land Use Projects – Landfill & Brownfield, Floating, Dual-Use (added to incentive for Small & Medium Non-Residential)	$ 30

The following pages show detailed results of MSSIA's modeling with both the SAM model and the ASP model.

A spreadsheet is attached showing modeling results and the full input table – all inputs for SAM and ASP models, for all thirteen cases. Note that the values above are broken down differently than in the tables below. The values above utilize an intermediate level of differentiation, and the values are rounded.

MSSIA presents the table above as a simplified alternative, but believes that serious consideration should be given to the maximum amount of differentiation, including differentiation by utility company. We believe that the degree of complexity can be handled in a streamlined way, and that the greater accuracy is worth it.

Modeling Results (SAM Model):

By classification (least differentiation)

Category	RESIDENTIAL	Commercial & Public (NEM OR GRID)	COMPETITIVE	COMMUNITY SOLAR
CATEGORY AVE.	99	116	78	107

By case (more differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
AVE. BY CASE	99	125	110	120	117	112	101	78	118	90	TBD	TBD	TBD

By case and by utility (most differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
IRR Target	8.50	8.00	8.00	7.50	7.50	7.15	7.15	7.00	7.60	8.00	7.75	7.75	7.75
JCP&L	125	114	99	118	116	111	99	76	144	115			
PSE&G	81	143	128	125	122	117	106	83	103	75			
ACE	86	112	97	113	110	105	94	71	97	69			
GRID				126	123	118	107	84			TBD	TBD	TBD

Modeling Results (ASP Model):

By classification (least differentiation)

Category	RESIDENTIAL	Commercial & Public (NEM OR GRID)	COMPETITIVE	COMMUNITY SOLAR
CATEGORY AVE.	91	106	71	105

By case (more differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
AVE. BY CASE	91	117	103	112	108	97	93	71	114	92	TBD	TBD	TBD

By case and by utility (most differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
IRR Target	8.50	8.00	8.00	7.50	7.50	7.15	7.15	7.00	7.60	8.00	7.75	7.75	7.75
JCP&L	116	106	92	110	107	95	91	69	140	117			
PSE&G	72	135	121	117	113	102	98	76	99	77			
ACE	77	104	90	105	101	90	86	64	93	71			
GRID				118	114	103	99	77			TBD	TBD	TBD

Modeling Results (SAM & ASP Model Average):

By classification (least differentiation)

Category	RESIDENTIAL	Commercial & Public (NEM OR GRID)	COMPETITIVE	COMMUNITY SOLAR
CATEGORY AVE.	95	111	74	106

By case (more differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
AVE. BY CASE	95	121	107	116	113	104	97	74	116	91	TBD	TBD	TBD

By case and by utility (most differentiation)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Category	RESIDENTIAL	C&I (NEM OR GRID)						COMPETITIVE	COMMUNITY SOLAR		DESIRED LOCATIONS		
Case Name	Residential	Small Commercial & Public Roof	Small Commercial & Public Ground	Medium Commercial & Public Roof	Medium Commercial & Public Ground	Large Commercial & Public Roof	Large Commercial & Public Ground	Very Large Commercial & Public Ground	Rooftop Community Solar	Landfill Community Solar	Landfill/ Brownfield (subsect. T)	Floating PV	Agricultural PV
System Size	7	350	350	1,000	1,000	3,000	3,000	10,000	1,000	5,000	5,000	5,000	2,000
IRR Target	8.50	8.00	8.00	7.50	7.50	7.15	7.15	7.00	7.60	8.00	7.75	7.75	7.75
JCP&L	120	110	95	114	111	103	95	73	142	116			
PSE&G	76	139	125	121	118	110	102	80	101	76			
ACE	81	108	93	109	106	98	90	67	95	70			
GRID				122	119	111	103	81			TBD	TBD	TBD

4. The Straw proposes that selected projects would receive a 15-year qualifying life, consistent with the TI Program. Staff seeks comments on whether this is the appropriate term due to the nature of heavily discounting outer-year incentives, as well for consistency with the proposed competitive solicitation program. Please comment on this proposal and explain any alternative suggestions.

Experience with the Transition Incentive Program has shown that the 15-year term was effective in attracting lower-cost capital to the state. It will also be effective in avoiding high costs over the next five to seven years, the "pinch years" when there is expected to be the most pressure on the cost caps. MSSIA recommends staying with the 15-year term for the administratively-set incentive program.

5. Staff proposes to establish annual capacity allocations for each market segment on an annual basis, as discussed in the Cost Cap section. The annual program capacity allocation would be divided (by four) into a quarterly allocation. Developers would then be able to reserve a spot within each quarter's capacity allocation.
    a. Staff proposes to allow projects to reserve capacity against the quarterly capacity allocation on a first-come, first-served basis. Please provide any comments on this proposal.

The majority of MSSIA members agree with the staff proposal for quarterly allocations, but not all member agree. Either way there is a concern regarding business disruptions if the allocations are spent early in a given period. Most members feel that is such things should occur, it is easier for businesses to weather a business interruption for a short period than a long one.

In past incentive programs, we have witnessed the scenes of companies setting up camp at night, waiting in line for the program administrator's doors to open, large stacks of project applications in hand. That kind of winner-take-all panic was destructive and punishing for the solar community.

    b. Staff anticipates that there may be situations in which a quarter's allocation becomes over-subscribed. How should the Board handle over-subscription?

If there is over-subscription in a particular market segment, but slow uptake in another, the BPU could consider a transfer between segments under certain circumstances.

    c. What different or additional measures could the Board take to ensure that there is sufficient opportunity to participate in the incentive program throughout the year?

6. Concern of "ghost projects" or "queue sitting" threatens the productive functioning of the incentive program. Please comment generally on the slate of project maturity requirements as proposed on page 13 of the Successor Straw or suggest alternative bidding requirements, including minimum criteria to demonstrate project maturity, site control, or escrow amounts to discourage speculation.

7. Staff proposes that projects awarded within a quarterly window pay a fee to the program administrator to cover the costs of administering the program. The fee would vary based on project size (under 25 kW, between 25 kW and 500 kW, and over 2 MW). Please comment on what fee should be required for the three project sizes.

8. Staff proposes that developers seeking an extension beyond the initial 12-month deadline must submit a deposit, refundable upon project completion, equal to 10% of the project cost and not to exceed a value determined with stakeholders. Please comment on how Staff should determine the deposit fee for a deadline extension request.

A 10% deposit in order to be granted an extension is overkill. Unavoidable delays that extend beyond one year are very common, especially in Commercial & Public projects. That makes the likelihood of needing the 10% deposit a realistic concern. If a project is under construction at that point, there's no turning back – too much investment has already been made.

A significant risk of loss is therefore inherent in the 10% deposit policy. Investors look at all facets of risk, and will look ahead and assess this unavoidable risk. The presence of the proposed policy will strongly deter investment, we believe. MSSIA recommends a much more modest deposit, on the order of 2% of the project.

9. Staff proposes to set incentives every three years to provide market certainty. However, using an administratively set incentive risks the potential for market under or over performance in any particular sub-market. What measures could be used to stop an overheated market and prevent inefficient use of incentive funds? Should the Board consider implementing measures such as a declining block structure, downward adjustments on the quarterly capacity allocation for the market segment, or others? How should the Board consider and assess market underperformance?

First of all, MSSIA appreciates staff's update in its May 7 Memo regarding a market "check-up" after one year. MSSIA believes that revisiting rates at one-year intervals could, and should, continue. As long as there is adequate notice of any change in incentive levels, a yearly review should not be too burdensome. That should help to address overheating or under-performance of any market segment, and will also allow BPU to respond to any substantial and widespread changes in market conditions.

10. What are the benefits and consequences of allowing or prohibiting behind-the-meter projects in non-EDC territories to register in the Successor Program?

Allowing behind-the-meter projects in non-EDC territories will open up additional space for solar development, and forestall the saturation of the available cost-effective sites in the state. That should help keep cost from rising. We recommend allowing such projects to register in the Successor Program.

<u>Competitive solicitation model for all grid supply projects and large net metered projects</u>

11. Staff proposes to divide the competitive solicitation into four tranches to allow like projects to compete against like projects. The four tranches are designed to enable the Board to set policy preferences through the design and project requirements of the tranches, thereby enabling cost to be the single deciding factor in awarding bids in each tranche.

    a. Please comment on the overall approach of using a cost-based bid determination within the four described tranches, rather than a single solicitation with a Staff-led scoring process, such as is currently used for the Community Solar Energy Pilot Program. What

eligibility or other solicitation criteria could be established to enable competitive bids from a diversity of project types and market segments with divergent cost structures?

b. Please comment on the four proposed tranches: basic (i.e., open space) grid supply; desired land use (e.g., contaminated land, built environment); solar + storage; and net metered projects greater than 2 MW. Is this the optimal configuration for the competitive solicitation? Would you suggest any changes?

12. Staff proposes to hold an annual competitive solicitation. Please comment on this proposed schedule. Specifically:

    a. Would you advise running the solicitations more or less often, and if so, why?

    b. Can all four tranches be administered on the same schedule, or should one or more be run more or less often than the others?

    c. Should the program vary the solicitation frequency schedule based on liquidity in any given tranche? For example, if a given tranche fails to attract sufficient bids in one period, should the program provide extra time before holding the next procurement in that market segment?

    d. Staff is particularly interested in determining if the net metered tranche should run more often than the grid supply tranches, and if so, why.

13. In the interest of procuring the maximum amount of solar energy and the lowest possible price, Staff requests feedback on whether projects awarded within the competitive solicitation should be paid-as-bid or receive a single clearing price.

MSSIA believes that projects awarded within the competitive solicitation should be paid-as-bid.

14. Staff proposes that selected projects would receive a contract for REC off-take in a term of 15 years, due to the nature of heavily discounting outer-year incentives, as well for consistency with the administratively determined program. Please comment on this proposal and explain any alternative suggestions.

MSSIA believes that a 15-year levelized incentive will function adequately. However, a lower, 20-year incentive is more congruent with the useful life of a solar investment, is common in other states with competitive procurement programs, and is generally favored by investors, particularly those with low-cost capital (like infrastructure investors). MSSIA recommends that a 20-year term be considered.

15. Staff proposes that projects applying to the competitive solicitation must post a deposit equal to $40/kW of DC nameplate capacity of the solar facility in an escrow account. Projects proposed with energy storage would be required to place an additional deposit of $40/kW of nameplate capacity of energy storage offered. The escrow amount would be reimbursed to the applicant in full upon either (i) the project not being awarded a contract through the competitive solicitation, or (ii) upon attainment of PTO for the solar electric power generation facility. If a project is selected, the escrow will be forfeited to the State on a pro rata basis for any kW capacity that remains unbuilt after 2 years, plus any applicable extensions.

a. Please comment on the proposed deposit fee(s) as they relate to the solar facility, whether it should be lower or higher, and why.

b. Please comment on the proposed deposit fee(s) as they relate to the storage facility, whether it should be lower or higher, and why.

c. The Straw Proposal seeks to ensure both strict project maturity requirements as well as general program accessibility. Please comment on whether the deposit should be required upon initial application or upon acceptance of a bid. In the alternative, should the Board require a lower deposit for initial application, followed by the balance due upon award?

16. The Straw proposes to include a tranche restricted to hybrid systems (solar and energy storage) in the competitive solicitation. Staff seeks commentary on the following:

a. The Straw proposes establishing a $/MWh incentive for hybrid systems would be administratively simpler than establishing separate contracts for the storage and solar components. Please comment on this approach.

b. How should the competitive solicitation account for battery degradation? For example, should applicants be required to commit to minimum performance metrics in order to qualify for the solicitation? Should applicants be required to commit to maintaining their stated capabilities until the end of the term? What criteria and documentation should the program administrator require as evidence?

c. Please address how the competitive solicitation should normalize bids associated with different MW and MWh capabilities. Should the Board require pricing based on specific battery sizes to enable clear bid comparisons, or should the Board allow flexibility?

d. Please comment on the potential for allowing distributed storage developers to place offers that aggregate a pool of distributed resources into a single "virtual power plant" bid that can participate in the grid supply paired with an energy storage tranche. Please address whether this is technically feasible for implementation in the first round of auctions or whether it should be deferred for possible consideration in future development cycles.

New programs and technologies

17. For solar projects proposed on farmland that allow for continued farming on the same parcel, known as "agrivoltaics" or "dual-use programs," is it likely that there is a market for dual-use projects smaller than 2 MW, or should Staff presume that all dual-use projects would be larger and enter the competitive solicitation?

It is highly likely that there will be a market for dual-use projects under 2 MW, and certainly under the current proposed 5 MW cap for the administrative program. Such projects are beginning to proliferate across the country and across the world.

One benefit of encouraging such projects is that it will enable smaller family-owned farms to participate in the program.

MSSIA proposes that strong dual-use agrivoltaic projects – that is, dual use projects that grow crops for human consumption at reasonably high productivity levels - be considered along with rooftops and contaminated sites as desired land use locations for the administrative program, including the community solar program.

18. If dual-use projects are permitted into the competitive solicitation in future years, should they be permitted as a fifth tranche or into the basic grid supply tranche with an adder? If with an adder, how should the Board determine the adder?

MSSIA believes that strong dual-use projects should be included in the Straw's proposed desired land use tranche of the competitive solicitation.

If, as we recommend, dual-use projects are allowed alongside contaminated sites and floating PV (see below) in the administrative program, those desired projects should qualify for an adder to represent the higher cost and difficulty associated with developing and building them.

19. Should additional siting restrictions be established for dual-use projects, for example, by limiting dual-use projects only to farms that meet certain soil characteristics or that are used for a certain type of herding, grazing, or crop type?

MSSIA believes that agrivoltaics projects with good productivity should be allowed on farmland with good quality soils. As discussed above and below, such projects can help bring fallow land back into production by improving their economic viability, and can help ensure that the land is not lost to agriculture because of development.

What rules and regulations should be established to ensure either no loss, or a reasonable loss, of agricultural productivity for dual-use projects? What should be considered a "reasonable loss" of agricultural productivity?

Because strong dual-use agrivoltaics is a relatively new art and much research is being conducted regarding means and methods, it would be best to start with relatively modest requirements in the first year, and ramp them up as the science advances. Currently, agrivoltaics for growing crops is generally limited to certain compatible crops. It would be advisable to survey existing projects and research programs to help assess realistic initial productivity requirements.
In addition, agrivoltaics presents an opportunity to bring farmland that is currently underutilized for economic reasons into active production, Such projects should be encouraged by the program. The presence of PV production on such land may provide a combined economic return that helps start up agricultural production, and PV's long-term (30+ year) presence can help ensure that land is not given over to development and lost to agriculture permanently.

20. Are there additional solar technologies or use cases for which this Successor Straw has not yet considered that may be considered for the Successor Program, either now or in the future? Please explain.

MSSIA recommends that floating PV, or floatovoltaics, be afforded the same treatment we recommended for agrivoltaics – that is, including floating PV in the desired land use tranche of the competitive solicitation, and be included in the administrative program, including the community solar program.

Floating PV is exploding worldwide. The largest project to date is a 150 MW project in China, but development is well underway on a 2.1 GW project in the Yellow Sea in South Korea, with modules already ordered for the first 300 MW phase. Floating PV makes use of underutilized space such as

reservoirs, saving space on land for other uses. It is also reported to help reduce evaporation, slow the growth of harmful algae, and help keep PV modules cooler, thus boosting performance.

Solar Siting

21. Please comment on Staff's proposed methodology for (a) limiting solar development on the areas specified on page 20 and (b) establishing a path forward for projects seeking to be developed on desired land uses that fall within otherwise prohibited siting areas.

MSSIA agrees with the proposed siting restrictions, except, as noted above, that dual-use agricultural projects that meet productivity standards to be developed should be allowed on prime agricultural soils. How could such projects be expected to meet productivity standards if they cannot be sited on productive land?

22. Has Staff overlooked any siting categories for which solar development should be either expressly prohibited or otherwise limited as described in the Successor Straw and noted in the question above?

MSSIA is not aware of any others at this time.

23. Has Staff overlooked any siting categories for which solar development should be considered a desired land use?

As discussed previously, MSSIA recommends that suitable bodies of water (subject to DEP review) for floating PV projects, and suitable land for dual-use agricultural PV projects, be considered desired location

24. How should Staff consider relatively new land uses for solar development, such as floating solar, former mines, and quarries? Others?

See above

25. Please comment on a proposed methodology for qualifying "contaminated lands." Please cite objective federal or state standards.

Section IV: Megawatt Targets

26. Should the annual capacity targets for the administratively set program be set broadly for the whole program, or should the administratively set program be further sub-divided into market segments with individual cost caps? In other words, should the Board set cost caps for the residential sector, net metered commercial rooftop, net metered commercial ground-mount, etc., or simply allocate a certain amount of money to the whole net metered program? Staff notes that the community solar segment will have its own cost cap.

First, the size of the administratively-set program vs. the competitive procurement program for the first year should be considered with initial time frames for development, and time to set up the competitive solicitation, in mind. MSSIA understands the need to encourage more development in competitive programs. However, MSSIA believes that the shift should be somewhat less abrupt, for several reasons.

First, the Straw's proposed first-year competitive solicitation includes 130 MW tranche for desired land use projects. Although MSSIA believes it is highly desirable to achieve such a goal, we believe that it would be virtually impossible in the first year. Even if, as MSSIA recommends herein, floating PV and

dual-use agricultural PV are added to landfills & brownfields on the list of desired locations, these are all project types that take a very long time to develop, and there are limited numbers of suitable sites.

Second, MSSIA believes that smaller-scale desired land use projects should be added to the administrative program, including landfills & brownfields, floating PV, and dual-use agricultural PV. More room would be needed in the administratively-set program to accommodate that.

Third, the small and medium (<2 MW) net-metered markets have formed the backbone of New Jersey's solar success up until now. These are the segments that have created jobs, grown local companies, and brought investment into the state. These are also the segments that are ready to go, and ready to ensure a successful first year of the Successor Program. We believe that enabling modest growth in these market sectors for the first year will aid solar businesses to recover from a very difficult 2020, and at the same time, give them time to adapt to a new environment where new opportunities will increasing come from competitive solicitations.

MSSIA recommends the following Megawatt Targets. Note that MSSIA does not believe it is necessary to have separate tranches for ground vs. roof, since they have similar economic characteristics.

ADMINISTRATIVE PROGRAM

Residential	150 MW
Small non-residential (<350 KW, net metered or grid-connected) and Medium non-residential (350 KW to 2 MW, net metered or grid-connected)	170 MW
Large non-residential (2 MW to 5 MW, net metered or grid-connected)	40 MW
Community Solar	150 MW

COMPETITIVE PROGRAM

Non-Residential Net Metered > 5 MW	40 MW
Basic Grid Supply	130 MW
Desired Land Use Grid Supply	70 MW
Total	750 MW

27. Should the annual capacity targets for the competitive solicitation tranches be set with flexible parameters, such that the Board may accept more or fewer projects into any particular tranche based on viable project applications and pricing, as long as the total projects accepted into the competitive solicitation don't exceed the overall annual budget cap?

Yes

28. Please comment on Staff's proposed megawatt targets for the first year (EY 2022) (see page 22).

See answer to Question 26, above.

Section V: Cost Cap Calculation

29. Staff proposes to include the total amount of expenditures by electricity customers on annual retail bills and the costs associated with all net metered and other solar projects – whether host- owned or third-party owned – when calculating the denominator of the cost cap, as to accurately

    reflect the total amount of money paid by New Jersey customers for electricity (see details beginning on page 24 for details).

    a. Do you agree with Staff's proposed categories for inclusion? Should any category be omitted? Has Staff overlooked a category that should be included?

    b. Please comment on the sources of information, calculations, and assumptions underlying the categories.

30. Please consider the benefits and consequences of using the moving three-year average of annual electricity demand versus annual amounts in calculating and forecasting the annual cost cap percentage.

31. For the purposes of forecasting future electric costs to estimate the cost cap in later years, Staff proposes using a 0.5% growth factor based on consumption patterns, presumptive expenditures for future and continued clean energy incentives, such as energy efficiency programs, ORECs, and ZECs, as well as increased demand due to vehicle electrification in particular, and cost declines due to increasing energy efficiency. Please comment on Staff's assumptions.

32. Staff proposes to include the following elements in calculating the numerator of the cost cap to reflect the cost of incentives paid by ratepayers: the annual costs of SRECs, TRECs, and Class I RECs, minus the DRIPE benefits of solar (see section beginning on page 29 for details).

    c. Do you agree with Staff's proposed categories for inclusion? Should any category be omitted? Has Staff overlooked a category that should be included?

MSSIA agrees with the elements in the question. In particular, we believe the DRIPE should be calculated according to the methodologies of Gabel Associates and Clean Power Research, choosing an average of the two.

MSSIA recommends that the social cost of greenhouse gases and the social cost of criteria pollutants be considered as well. The calculation of the social cost of greenhouse gases should be done in compliance with A4606, the 20-year time horizon bill - which is to say using the most recent 20-year time horizon GWP's for greenhouse gases, and using the lowest discount rate that is consistent with federal guidance. The calculation should initially use the current Interagency Working Group on the Social Cost of Greenhouse Gases' Interim Estimates, and then the permanent estimates when they are published (expected in January). Note that guidance in the Interim Estimates encourage discount rates below 2.5%, but MSSIA believes that the use of the 2.5% discount rate is a practical compromise, since value are not yet given below 2.5%. Also note that the values given in the Interim Estimates are based on the 100-year time horizon, so values for gases other than CO2 would have to be adjusted for the 20-year time horizon in order to be compliant with A4606.

MSSIA believes that for the numerator to be accurate, the savings accrued by direct participants in the renewable energy programs would have to be included, since they are part of the total paid for electricity by consumers.

MSSIA also recommends that other values such as the hedge value, security value, post-incentive value of continued operation, economic growth value, and others as studied by Clean Power Research.

d. Please comment on the calculations and assumptions underlying each of the components of the cost cap.

e. How should the Board consider the assumed annual value of SRECs, which is not fixed?

Section VI: Implementing the Successor Program and Transitioning from the Transition Incentive Program

33. Please comment on the Staff proposal that, following the close of this stakeholder process, the Board will issue an Order directing Staff to close the Transition Incentive Program within 30 days. After that 30-day period, the administratively set program will open immediately. The competitive solicitation is targeted to commence in the second half of 2021. Staff notes that there will be a seamless transition for residential, community solar, and net metered projects at 2 MW or less, but there will likely be a gap between the end of the TI Program and the start of the competitive solicitation that will affect large net metered and grid supply projects.

Our primary comment regarding the timing of the transition to the Successor Program is to ask staff to take the time to research and carefully consider MSSIA's, and the broader industry's recommendations, particularly regarding complex issues surrounding the administrative incentive levels. We request that if unresolved differences remain, the BPU provide opportunity for Cadmus, staff, and the solar industry to engage in fully transparent and interactive communication to get to the bottom of those differences and ensure that the program is viable.

Ensuring State Policy Priorities

Should "adders" or "subtractors" be used to further differentiate incentives by project attributes in both the administratively set incentive program and the competitive solicitation, only one program, or neither? Explain why.

As discussed previously, MSSIA recommends allowing landfill & brownfield projects, floating PV projects, and dual-use agricultural PV projects under 5 MW to participate in the administrative program. These projects should be allowed whether they are net metered or grid-supply projects. Since they all cost more to develop and build compared to ordinary ground-mount project and rooftop projects, they would need an adder in order to develop successfully. Roughly speaking, the cost premium associated with these three types may be similar.

34. Would adders make the administratively set incentive program too complex when coupled with the anticipated differentiation envisioned for residential, non-residential roof, non-residential ground, community solar LMI, and community solar non-LMI? How could they be used most effectively?

Experience with the Massachusetts SMART program showed that appropriate differentiation with multiple adders made the program look complicated at first, but it didn't take the solar development community very long at all to figure it all out and go ahead full speed. Once developers had studied the details, they did the work of putting proper applications together for their projects.

The way the SMART program was set up helped as well. Mass. DOER published a detailed Powerpoint presentation detailing the program. The program incentive rates were differentiated by project type and size, by utility territory, and even by tariff, plus a grid-supply option, plus adders, but DOER published tables showing the incentives and adders clearly. DOER also implemented an online worksheet that automatically calculated the incentive for a given project.

For the administrative program, MSSIA believes that adders should be implemented for desired land use (see above), solar+storage, particularly for microgrids for critical facilities, and for public projects.

35. Should the administratively set incentive program include an adder for projects that benefit environmental justice communities? For the competitive solicitation? If so, should there be criteria to select the projects with the highest benefits? How can "benefits" for these communities be quantified?

Yes, MSSIA believes that there should be adders for projects that benefit environmental justice communities, but has not yet formulated detailed recommendations for them.

36. How else could the Board consider designing the program to encourage broader participation among traditionally underrepresented groups?

MSSIA will contribute ideas in this regard at a later time

Section VII: Community Solar Permanent Program

37. Please comment generally on whether the Board should consider maintaining the competitive solicitation for community solar projects in the Permanent Program, or if it should adopt strict qualifications and otherwise establish a first-come, first-served model (detailed as Option 1 and Option 2 on pages 40-41).

MSSIA believes that strict qualifications (such as requiring all projects to be LMI projects) and moving to a first-come, first-served model with quarterly caps, subject to stakeholder engagement to work through potential issues regarding the change. We believe that continuous development (within the bounds of the megawatt caps) will enable more community solar development.

38. Please comment on the Pilot Program rules (detailed beginning on page 41) and discuss which, if any, the Board should consider modifying for the Permanent Program, and why.

MSEIA believes that there will need to be more policy initiatives aimed at increasing access to LMI subscribers and raising the % LMI of projects. These should include opt-out policies, policies to encourage municipal and other local government and quasi-governmental entities to contribute to and participate in subscriber acquisition, and possibly direct state involvement.

39. Currently, community solar projects must be sited in a single location and are not permitted to include aggregated rooftops.

    a. Should the Board consider revising this policy to allow aggregation of rooftop projects, up to the 5 MW capacity limit? Please comment on this general policy, and if you agree, what kind of limitations should the Board set with respect to the

proximity of the rooftops, site control or ownership, etc.

b. What should the Board consider with respect to the competing value of rooftop space, particularly on multi-unit residential and small commercial buildings, in locating HVAC or other equipment necessary for future energy efficiency and building decarbonization measures?

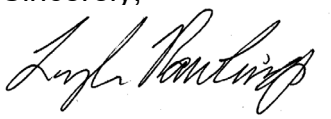
Bonus Question

40. Staff is seeking feedback on its proposal to call the Successor Renewable Energy Certificate a "UREC" to differentiate it from the Solar Renewable Energy Certificate (SREC) and the Transition Renewable Energy Certificate (TREC). In the alternative, please provide additional acronyms or program names for consideration.

MSSIA believes that the term UREC will serve the purpose, but prefers either the term "SREC II" or "SREC 2" as a more familiar term that has been used before (in Massachusetts). Aside from that, we don't have any bright ideas.

MSSIA thanks staff for the opportunity to provide input on this matter.

Sincerely,



Lyle K. Rawlings, P.E.
President