New Jersey Solar Transition
BPU Docket No. QO20020184
Comments from Pro-Tech Energy Solutions in response to the
BPU Notice of August 11, 2020

Dear Secretary Camacho-Welch:

The purpose of this letter is to provide comments from Pro-Tech Energy Solutions on the above matter pursuant to the BPU's notice of August 11, 2020.

We appreciate the opportunity to provide these comments. Pro-Tech Energy Solutions is a New Jersey based leading vertically integrated renewable energy company that develops, designs, finances and provides full engineering, procurement, and construction services for commercial and utility scale solar PV projects throughout the United States.

The Successor Solar Incentive Program should recognize and encourage Solar Projects at current and former Mining Sites

If the State of New Jersey is to meet its aggressive goal of 12,188 MW of solar capacity by 2030 and 32,200 MW of solar capacity by 2050, it *must* enthusiastically embrace innovative solar technology that can be developed without encroaching on our open space and any harm to New Jersey's environment. Especially so with a technology that capitalizes on available and suitable open space to mount solar panels; namely, used mining sites.

These sites, known as "Blue Holes", are former gravel or sand mines which have filled with water or been filled with sand. Solar energy can be installed in these areas as ground-mounted solar arrays on the sand surface of the mining pits or floating solar arrays on sites filled with water.

These mining sites are already zoned for industrial uses by local land use boards and are required to follow requirements of the New Jersey Department of Environmental Protection. Sand mines include electrically powered dredge machines and large sorting operations which means they also have a robust electrical infrastructure for interconnection.

The benefit of siting solar on mining sites, whether floating arrays or ground-mounted arrays, are large systems that reuse underutilized industrially zoned property and offer large scale and cost-efficient solar energy with no impacts on open space.

One of the biggest challenges to developing solar in New Jersey are siting and interconnection. Solar on a mining site eliminates these two barriers given the infrastructure that already exists on a property that is zoned industrial.

Solar projects on mining sites are effectively "shovel ready" projects in a way that does not have the interconnection and siting challenges that face other sites. These are also large projects that can occupy acres of unused or underutilized industrial land, provide jobs and capture cost efficiencies that such scale will bring.

Given these characteristics, the BPU should design its successor solar incentive program in a manner that supports the development of Blue Hole Projects. **Specifically, these sites should NOT be categorized with grid projects built on open space.** Due to the unique benefits and value described above, Blue Holes should be defined as a specific category of solar incentive, with a fixed price fifteen-year REC with an adder/multiplier, similar to the design of the BPU's current TREC Program. Pro-Tech is prepared to work with the BPU, its Staff, and its consultant to develop a reasonable incentive level and an adder/multiplier that allow these projects to be developed while protecting ratepayers.

In order to protect ratepayers and track cost changes over time, the incentive structure and adders/multipliers should be reviewed and reset every three years. This will ensure the incentive for new projects track changes in cost, tax credits, and market changes over time.

In developing the incentive structure and adders/multipliers, the State should be cognizant to separate value from cost. As discussed previously, developing solar on mining sites carries unique value to helping New Jersey meet its renewable energy and emissions goals while simultaneously protecting open space that is precious and scarce in New Jersey. Solar itself also provides quantifiable value: it is emissions free, puts downward pressure on wholesale energy prices by displacing more expensive generation sources, and provides in-state jobs supporting New Jersey's economy. Solar also provides benefit to the distribution system itself – relieving strain on the grid in specific locations that may result in deferred upgrades and investments. The State must operate its solar market under cost caps, and therefore it is imperative that value be properly categorized.

In summary, solar project development on mining sites presents New Jersey with the unique opportunity to meet its solar goals in a way that minimizes the use of open space, instead relying on industrial sites that are ready for re-use. These projects also deliver the cost efficiencies that building in scale delivers. This unique value should be recognized through a fixed 15 year incentive structure that incorporates an appropriate adder/multiplier that recognizes this unique value.

BLUEWAVE

Successor Program Capstone Report
Docket No. QO20020184
September 8, 2020

Dear New Jersey Board of Public Utilities and Staff,

BlueWave Solar (BlueWave) is a community solar developer and services provider based in Boston, MA. We have developed nearly 200 MW of community and public solar and are working on the forefront of dual-use development with New Jersey's farmers and landowners. We are excited to bring BlueWave's commitment to holistic development and community engagement to the residents, small businesses, public entities, municipalities, and farmers of New Jersey.

BlueWave is a member of the Coalition for Community Solar Access (CCSA) and is an active participant on the New Jersey Subcommittee. BlueWave firmly supports the comments filed by CCSA in the Successor Program Capstone Report Docket No. QO20020184. Additionally, we submit these supplemental comments outlining the opportunity New Jersey has in embracing dual-use solar projects by providing an incentive to qualified projects.

BlueWave sincerely thanks the Board of Public Utilities (BPU) for its collaboration and interest in building out a robust and responsibly sited successor program. We respectfully submit these comments for consideration by the BPU and look forward to working together to meet New Jersey's ambitious clean energy goals while at the same time prioritizing land preservation and farm viability.

What is Possible Through Dual-Use for New Jersey?

In our comments we will refer to "light" and "full" dual-use projects. The following are definitions of those projects. BlueWave is happy to follow up with BPU staff with more details about how we break down the incentive payments, rather than submit these proprietary financials in public comment.

Light Dual-Use: Actively managed grazing-friendly solar aimed at livestock production with slightly elevated and strengthened racking. This type of dual-use solar array could also be designed to host crops in and around the project and meet baseline sunlight thresholds over a minimum percent of the project area. A modest incentive would account for increased costs of materials for animal grazing, design, and loss of density due to spacing the rows further apart.

Full Dual-Use: Projects with robust agricultural and horticultural production under and around appropriately elevated solar canopies designed to meet baseline sunlight thresholds over a minimum percent of the project area. This would require more investment in costs for materials, larger farmer subsidies, upgrades to farm equipment, farm management resources, and decreased panel density.

Dual-Use in a REC-based Factorization Incentive Structure

Although there needs to be more clarity around the overall potential REC value for a successor program, it is possible to build certain types of "light" agricultural solar arrays in order to qualify for a factorization equal to the TREC community solar transition program value (.85 factor). As stakeholder sessions and discussion around the value of the program are further solidified, BlueWave will be able to determine a workable financial model for "light" and "full" dual-use under a factorized REC structure.

In order for the .85 factorization of the current TREC levels to work for dual-use projects in New Jersey, the project size would need to be 5MWDC. Financial models become unfeasible when the projects decrease in size from 5 MWDC. If the policy objective is to have smaller than 5 MWDC projects with "full" elevated dual-use, then the factorization would need to be closer to 1.0, the same as the TREC program categorizes parking lot canopies. Parking lot canopies are similar to dual-use projects since both project types require increased racking and different construction considerations. BlueWave is confident that in a REC-based factorization structure with the ability to participate in retail rate net metering, dual-use will work in New Jersey.

Dual-Use in an Adder Incentive Structure

Under an administratively set incentive structure similar to Massachusetts' SMART program, dual-use projects would need a sufficient to be determined base compensation rate paired with an adder in order to be financially feasible. For "full" dual-use projects the adder level would need to be at least .05/kWh for a 5MWDC project. Below 5 MWDC, projects will not return revenues that adequately provide value for projects in that size range. With the additional needs for farm capital investments, farmer subsidies, and decreased panel density, "full" dual-use needs a higher incentive. As for a 5MWDC "light" dual-use project, BlueWave projects would need a sufficient base compensation rate and at least a .03/kWh adder.

BlueWave is happy to share the details of this analysis with staff, but declines to submit these proprietary details in public comment.

A Dual-Use Program Should Not be a Competitive Procurement

A competitive procurement for dual-use projects would deter market players from participating. Oftentimes the purpose of a procurement is to drive down costs for project development, but we know that dual-use inherently costs more to develop because of the complex aspects of coupling energy and agricultural operations. Squeezing margins for a procurement would do a disservice to farmers and disincentivize developers from pursuing these projects. Dual-use should be thought of as a powerful policy tool to protect farmland, increase farm viability by private resources, and provide clean energy savings to residents and communities.

A Stepwise Approach to New Jersey Dual-Use

As the BPU determines the best approach to allow solar siting on undeveloped land, we urge Staff to consider signaling to the dual-use market and award dual-use projects on farmland higher scores in the Community Solar Pilot Program. This will lay the groundwork for a robust and efficient dual-use market once the successor program begins.

As projects currently receive zero points for siting on farmland or previously undeveloped land, the BPU should consider projects that allow for new or continued agriculture or horticulture in and around the arrays on preferred sites. The BPU should award points for projects that demonstrate the continued agricultural use of the land through maintaining farmland assessment status. This process already exists for farms to maintain their farmland tax status and the appropriate agencies can utilize this assessment to verify agricultural activity for dual-use projects, instead of creating an additional process.

The benefit of this step is to signal to the industry that dual-use is coming to New Jersey, allowing for a sufficient market shift. An additional benefit is that economic development to farmers could start sooner and aid in the post-COVID recovery. Farmers could begin to receive lease option agreement payments as soon as there is an indication that the market will be moving in the direction of dual-use. For some farmers, this means investments in additional jobs, upgrading farm equipment, or staying afloat when other income streams are not readily available.

Dual-Use as an Economic Development Tool

Dual-use can be a targeted post-COVID recovery tool for the agricultural community. With many family farms struggling to meet the demands of a new marketplace, a solar project that does not take land out of production can help stabilize a family enterprise for the next generation. Stable solar revenue can jump start the agricultural economy and be an incubator for new and innovative farming business models. Because of the economic uncertainty of COVID, more than ever, farms in New Jersey are at risk for conversion to permanent forms of development like housing or strip malls.

Additionally, dual-use solar is an economic development tool not just for farmers, but for municipalities as well. Developers are committed to paying property taxes on behalf of the farmers or landowners for the life of the dual-use project. If the project is also built as a community solar project, towns often have the chance to be anchor customers and realize energy savings on behalf of their residents.

Net Crediting to Achieve Low to Moderate Income Program Goals

As the BPU considers which policy priorities to incentivize in the successor program staff should consider, BlueWave supports an incentive for LMI participation, but it also important for the BPU to consider giving solar providers the option to use net crediting.

Net crediting is a mechanism in which community solar savings show up directly on customer utility bills. The utility then allocates a monthly payment to the project owner after credits are applied to customer accounts. Net crediting benefits the customer through guaranteed savings every month and a simplified experience on their utility bill.

By allocating the savings associated with customers' community solar subscriptions directly to their utility bills, net crediting eliminates the need for community solar providers to send customers a separate bill and removes the risk of non-payment. This allows providers to widen the pool of eligible customers who can subscribe to their projects. Removing underwriting criteria, such as FICO scores, and reducing operating costs, net crediting can allow greater LMI participation and access to community solar. With increased financial constraints due to COVID-19, net crediting can guarantee that customers pay less for electricity while reaping the benefits of local community solar.

We want to commend the BPU for a thoughtful and engaging stakeholder process on the Community Solar Pilot Program as well as an open and transparent conversation about the future of the permanent program. If the staff has any additional questions about dual-use solar or net crediting, please reach out.

Sincerely,

Lucy Bullock-Sieger
Director of Civic Engagement

The Coalition for Community Solar Access (CCSA) is a national Coalition of businesses and non-profits working to expand customer choice and access to solar energy for all American households and businesses through community solar. CCSA's mission is to empower every American energy consumer with the option to choose local, clean, and affordable community solar. We work with customers, utilities, local stakeholders, and policymakers to develop and implement policies and best practices that ensure community solar programs provide a win, win, win for all, starting with the customer. Our members are actively engaged in New Jersey's Community Solar Market and we appreciate the opportunity to comment on New Jersey's successor solar program.

Introduction:

Community Solar can and should play a significant role in the solar build out in New Jersey. Ever since New Jersey's solar market started in the early 2000s, the market has been plagued by a design flaw that has prevented most ratepayers in New Jersey from direct access to solar energy and its many benefits. Only those residents fortunate enough to own a home and have a roof that faced the right way and was large enough and in good enough condition to accommodate the weight of the solar panels, could enjoy the economic benefits of solar. Until the advent of community solar, customers also had to have a strong credit score to get a loan or a Power Purchase Agreement (PPA). Community solar is the vehicle to provide access to the 75% of American households and businesses by removing the common obstacles of financing, roof feasibility, and home or building ownership; ensuring all New Jersey ratepayers can participate directly in the renewable energy economy and individually contribute to the goals of the state's Energy Master Plan.

For many reasons, solar has not been an option for people living in urban areas or in high density housing. This persistent inequality in solar access is long overdue for a brighter way forward. The Clean Energy Act of 2018 provided a path to a permanent community solar program following a pilot program. Importantly, the Act provides low- and moderate-income residents of New Jersey an opportunity to participate in achieving New Jersey's clean energy goals. Community solar must be a significant part of New Jersey's immediate energy future so that we can rebalance an inequitable status quo toward equal access and environmental justice.

The State's Energy Master Plan (EMP) sets ambitious goals for New Jersey's energy future. The goal of 17 gigawatts of solar by 2035, and simple math suggests New Jersey will need to add at least a gigawatt of solar in the next several years to move toward this goal. Community Solar

(CS)should be a significant element of this growth as it brings scale, value, and savings to New Jersey residents who have historically been excluded from the benefits of solar.

Community Solar should receive a fair, and appropriate, fixed payment:
Given the unique value of Community Solar, CS projects should be among the category of projects eligible to receive a long term fixed payment for RECs. This is not a determination based on size in a bifurcated market design, which CCSA generally supports. Rather, the fixed payment is reflective of the types of projects favored by the State.

A fair and appropriate fixed payment, along with a significant capacity target and clear, measurable eligibility requirements that continue for more than a single year will bring New Jersey the jobs, cost savings, and economic development that come with being a leader in community solar. The fixed payment will allow community solar projects to be developed expeditiously with lesser risk, which translates into lower rates, and higher benefits, to community solar customers.

The Cadmus Report suggests a dramatic and unexplained reduction in community solar incentives compared to the level of incentives currently available in the Transition program. As discussed in greater detail below, Cadmus notes that projects with cost adders (i.e., carports, community solar) need relatively higher incentives ..."[1] and yet Table 30 of the Cadmust report suggests that rooftop community solar was modeled with an incentive level lower than direct-owned roofs and only half that of third-party owned roofs. This is a sudden and unsupported change.

Capacity targets for Community Solar:
Increasing the capacity in the CS Pilot Program will allow the greatest number of New Jersey residents and businesses to participate in the green economy, mitigate the effects of climate change, and allow community solar an equitable chance to be a robust part of New Jersey's energy mix along with more established solar markets in the state.

We recommend 300MW for PY2 - which we also recommend should be the final year of the pilot program. Regarding a yearly allocation for the permanent Community Solar program, that capacity should build from the pilot program with the allocation grounded in EMP goals of all ratepayer access, environmental justice and equity and the goals of carbon free generation by 2050. However, the first year of the permanent program should have an

[1] Draft Capstone Report, August 11, 2020, p.72

allocation no less than 500MW and should increase based on the EMP goals. CCSA strongly recommends PY2 qualify for TREC incentives and transition to the SREC Successor incentive with the alignment of the permanent program.

CCSA recognizes there might be regulatory process requirements that may prevent the alignment of the two programs. In this event, we would recommend increasing the capacity for PY2 to a minimum of 300MW and PY3 should receive a least 400MW. The permanent program should continue to be grounded in the EMP goals for ratepayer access, as previously recommended, and should start no lower than a first year allotment of 500MW. In addition, if the permanent program and the successor program cannot be aligned by the launch of the successor program, the Board will need to ensure flexibility in the design of the successor solar program in order to incorporate lessons learned from the solar pilot program and when the rules are established in 2021. The Board's ability to adjust the successor program, as appropriate, to reflect the new community solar program rules will be crucial.

Syncing the Permanent CS program with the solar successor program:

The response to the first year of the pilot program was robust. More than five times the 75 MW cap showed up in the application process. Given unmet demand, the EMP goals, the persistent flaws in the current solar program that disenfranchise most residents in New Jersey and continue historic inequality, **CCSA highly recommends syncing the permanent community solar program with the implementation of the SREC Successor Program** to create market certainty and allow the community solar permanent program to fully participate in newly established solar market as a permanent fixture. In particular, the rulemakings for the successor program and permanent community solar program should align. This alignment streamlines the work of staff and stakeholders, gets the State on track to meet our emissions and renewable energy goals, and creates opportunity to serve all ratepayers in the most fair and equitable manner.

The State has not yet begun accepting applications for the second year of the pilot program. While we believe that learning from the pilot program projects can and will inform the permanent community solar program, New Jersey can and should take advantage of lessons learned in other state community solar programs. This is an efficient use of staff's time, which is a limited resource given everything the BPU is undertaking to stimulate New Jersey's green energy economy. Alignment just makes good sense.

Priority features of the Solar Successor Program:

Equality of access to solar should be a priority of the permanent solar successor program. This is best delivered through community solar subscriptions, creating clean energy opportunities for residents who may otherwise face barriers to access. Further, maintaining systems over 20 to 30 years will be necessary to ensure the investment made by New Jersey is sound and is providing the value needed: emission-free electricity generated by the sun. Regarding ratepayer cost considerations, it is understood that *scale delivers lower costs*.

For these three reasons, among others, community solar can and should play *a significant role* in how New Jersey's solar generation is built out over the next decade. Equality of access and environmental justice regions will be served by aligning the Successor Program with community solar.

Comments:
The following section provides comments to several of the specific features of the solar successor program that were discussed at the stakeholder meeting on August 20, 2020 and posed as questions in the notice to stakeholders dated August 4, 2020.

Incentive structure design:
As recommended by the Board's consultant, CCSA agrees with a bifurcated market design that would have both a fixed incentive and a competitive program. The competitive solicitation process should be reserved for large utility-scale projects participating in the wholesale electric market, and this should not include community solar. Separately, projects that qualify for the community solar program should receive a long term fixed incentive. Since community solar projects are unique and do not have equivalent value and cost structures with large scale projects that sell directly into the grid, it is appropriate for community solar projects to receive a fixed incentive. This structure will allow for price discovery and market certainty for different solar market segments. As previously stated, fixed incentives provide the market certainty needed to establish this new solar market, providing access to solar for all while giving the BPU the flexibility to make adjustments in response to energy market changes and New Jersey's customer base.

For project types that receive long term fixed incentives, CCSA recommends an adjustable block program supported by periodic evaluation by the BPU and adjusted biennially to protect ratepayers, provide a reasonable balance between consistency, and provide the opportunity to adjust for market conditions;

A longer-term fixed incentive helps bring increased savings to customers through the creation of a cost-effective market. A longer term fixed payment will also help the Board manage the total program costs against the cost cap. For community solar projects, CCSA recommends a term of 15 years or longer with a fixed incentive for the full length of the applicable term.

Value versus cost:

The term "incentive" usually denotes additional costs. Costs and value need to be distinguished from each other. Both cost and value may be part of an incentive and this needs further discussion and clarification in order to be properly reflected in program design. Also, any discussion of qualification life must discuss which elements could be time-limited.. To illustrate with an example, as long as solar is generating, it is providing value through carbon-free generation. This value should not be subject to an artificial cap based on time.

In the early 2000s, the concept of a solar renewable energy credit (SREC) tied to generation was first discussed with the idea that the SREC would capture and reflect value that the markets did not yet recognize . As the State migrated its market design to reliance on the SREC in 2006, the SREC was thought of and discussed as an "incentive." The implication was that the SREC was not delivering *additional value to* ratepayers; it was *an additional cost on* ratepayers – a crucial difference.

It is well accepted that solar provides multiple benefits or values to end users, to the electric distribution system, to the regional transmission system, and to society, as the following examples illustrate:

- Merit Order Impact and Peak Shaving: Solar energy is injected into the grid at a fuel cost of zero. This benefits all ratepayers by putting downward pressure on the clearing price in the wholesale markets for electricity, as higher cost generation is removed from the dispatch supply stack. This impact has been recognized by the BPU in its review of energy efficiency programs.

- Emission-free: Solar generation is emissions-free. New Jersey has suffered from poor air quality and this is an emissions-free generation source for the 20-30+ year lifetime of the project. It is also carbon-free, making long-term contributions to fighting climate change.

- Economic multiplier effect: Solar is locally produced, creating jobs and economic benefits to the State and municipalities. As an example, New Jersey will see an increase in community solar employment, including thousands of sustained full-time jobs, paying an average wage of $33/ hour, if only 1.5GW of Community Solar was built. The economic multiplier effect is a fact also recognized by the BPU in its review of energy efficiency and offshore wind energy projects. We recommend that the Board apply similar recognition of solar's economic benefits in the development of the SREC successor program.

- Distribution Grid Benefits. Solar also provides benefits to the grid, although quantifying how solar may defer distribution upgrades and/or provide locational grid benefits will be the subject of ongoing investigation and discussion with utilities as distributed energy resources (DERs) continue to play a larger role in generation. It is notable that in the NY REV proceedings, *distribution value* was recognized and given a placeholder as a "market transition credit," in the value stack for large scale solar with ongoing work to help more specifically quantify its value.

- Environmental Justice. Community solar projects bring clean economic development and energy savings to local communities who have been traditionally left out of the green economy and have experienced health and economic repercussions from fossil fuel generation. Through intentional collaboration with community-based organizations, community solar can support equal access to clean energy and facilitate equitable participation in program design.

- Low and Moderate Income Communities. Due to common barriers to accessing clean energy, such as home and building ownership and financial barriers, New Jersey residents have been unable to participate in the green economy. Community solar provides access to clean, affordable energy, needed cost savings, and has the potential to relieve energy burdens for many of the state's most deserving residents, both urban and rural. Local community solar can provide access to job training and opportunities, increased tax dollars paid for by developers, and necessary grid upgrades to geographies that have been neglected.

As New Jersey contemplates the market structure for the solar successor program and the permanent community solar program, it will be crucial to distinguish cost versus value. New Jersey will benefit from a cost-effective market that places incentive levels (costs) lower than

the fully recognized value of solar energy. This should be the subject of a workshop meeting this fall.

Interconnection costs:

As DERs proliferate on the distribution grid, the expectation is that it will become more costly to interconnect those systems as circuit limitations are reached. The market has already experienced this, especially in the southern part of New Jersey where certain circuits remain closed to development without significant and costly upgrades to the grid in those locations.

In some cases, battery storage and other technologies may be deployed to defer or avoid grid updates: solutions referred to as non-wire alternatives. In other cases, the grid will require additional reinforcement by the utility to accommodate DER. Up to this point, any improvements to the grid required by the utilities in order for solar projects to receive permission to interconnect have been on the back of solar developers. As a result, some projects will be more costly than other projects of equivalent size and type because of these elevated interconnection costs. It is not that the projects requiring such upgrades are delivering any less value to the end user or to society at large. In fact, the investments made by these projects are likely to directly benefit the distribution grid in a particular location. Those investments may also create room for other DER projects or other customers that share that circuit to expand their utility usage without any cost consequence.

The challenge of more costly interconnection should be addressed in a working group session this fall. Topics for discussion should include non-wire alternatives, adders to cover those non-wire alternative costs, and a broad socialization of the cost of the utility upgrades required to facilitate interconnection. More generally, an interconnection working group that meets regularly can provide transparency, better interconnection management and opportunities for innovation with respect to interconnect and related processes across the solar sector.

Managing queues:

Projects should be subject to meeting clearly defined criteria for project readiness in order to be accepted for a fixed incentive. The Board may also consider security deposits that will provide discipline and discourage speculative applications.

Once a project is accepted for a fixed incentive, the larger more complex projects should be subject to reporting requirements that demonstrate progress towards project maturity milestones. In CCSA's experience in other state programs, strong maturity requirements, such

as permits in-hand, and completed interconnection studies, allow a market to be "always-on" and don't require regulators to actively manage the market.

Agricultural Benefits:

Community solar projects allow farmers to stay in operation by utilizing a small portion of their land for a solar facility, generating additional revenue without losing valuable farmland to development. Small ground-mounted systems are installed to protect the health and well-being of the land through soil protection, flooding mitigation, removable racking, and minimal use of concrete. With improvements to solar panel technology, ground-mounted projects can more efficiently harvest the sun at a lower cost to consumers. Ground-mounted projects can be further enhanced through dual use technologies to promote sustainable land management practices, supporting natural ecosystems by cultivating small crops or pollinator-friendly vegetation beneath the solar array. We recommend the addition of agricultural use as a category.

Cadmus Modeling:

CCSA appreciates the thoughtfulness and the process the Board and Staff have implemented to develop a revamped solar market for New Jersey. Cadmus' modeling is prudent and deliberate. Overall, CCSA generally believes that most of the assumptions are appropriate with a few critical deviations.

CCSA is very concerned about the minimum incentive levels for the community solar cases that are included in Table 30 of the report. CCSA has been unable to replicate these numbers and it is not clear how these cases have produced such substantially lower incentive values for community solar projects relative to other similar project types. These cases do not accurately reflect current community solar project costs. CCSA believes the discrepancies are likely due to errors in assumptions around specific yield, EPC costs, community solar administration costs, and underestimating the lease rates currently seen in the market.

The values are also a significant reversal from the methodology that the BPU relied on in determining the factors under the TREC. From the information contained in the report, it is not clear to CCSA the reasons for this significant discrepancy, which represent as much as a 60% reduction in incentive value for community solar from TREC levels. A change in incentive value of this magnitude from the TREC to the Successor is not warranted and would be a major disruption to the current market.

As currently proposed, these incentive levels would likely not be sufficient to support the vast majority of community solar projects in New Jersey, particularly those on preferred siting. While the points below may address some of these discrepancies, CCSA believes Cadmus and the BPU need to more fully investigate the assumptions made for community solar in order to address this major issue and determine the source of the deviation. CCSA is ready to assist the BPU and Cadmus in this effort.

CCSA also encourages Cadmus and the BPU to keep in mind the interplay between revenue from fixed incentives and variable rates. Community solar project revenues are a blend of the two, but for financing purposes those dollar amounts are not necessarily equivalent. For project financing, a higher percentage of project revenue coming from fixed incentives is more favorable than the alternative, which is seen to carry greater risk. This is a major advantage of a fixed compensation model. For community solar, an increase in the value of the fixed incentive is more significant for ultimate project viability than an escalation in variable rates.

Based on our analysis, the Cadmus modeling assumes all projects are able to safe harbor under the 2020 ITC. The BPU should not assume that all projects are able to safe harbor and it doesn't make sense to assume that community solar projects are safe harboring in 2020 when it's unknown if they'll be accepted to the program until 2021. On a broader scale, safe harboring strategies differ significantly depending on each SAM case. Given the timelines for program design and implementation, this is not a safe assumption for community solar projects.

Lastly, we recommend increasing the modeled community solar project capacity from 3 MW to 5 MW, for the life of the project, to facilitate a more cost-effective market through economies of scale.

The specific energy production (SEP) capacity factor for ground mount installation (16.2% to 16.5%) seems reasonable but capacity factors for the other project types as shown in Table 15 on page 37 are too high. These values range from 14.2% for Residential Roof to 15.7% for Commercial Roof, which is higher than the 13.2% used in 5.1% SREC Milestone analysis. While it is reasonable to assume that newly installed systems will outperform the current fleet average, except for the ground-mount systems, the system design assumptions (tilt, azimuth, system losses) should be adjusted to reduce the capacity factor assumptions by 1% for each project type.

It is critical that Community Solar installations be modeled with a lower PPA escalation rate. The 2.4-2.5% escalation assumption of retail and PPA rates is generally too high. Current PPA

escalation rates are generally 1.5% and lower (even 0%). Although the retail rates are forecast to escalate, New Jersey retail rates have been flat (even slightly declining) for the past decade. Most customers will not accept anything more than a modest escalator. Moreover, many of the costs that will drive retail rate increases over the next 15 years are not offset by Community Solar net metering, per the Board's Orders on community solar credit, e.g. OREC charges, SBC, and ZEC charges are not included in the calculation. Accordingly, Community Solar projects should receive a 0% escalator in the SAM modeling to reflect these market realities.

In conclusion, CCSA highly recommends aligning the permanent program with the SREC successor program with an increase in capacity for this market segment. Applying an adjustable block fixed incentive for the community solar market will provide the market certainty to stimulate investments and increase access to solar for all. CCSA looks forward to working closely with BPU staff through the working group process and hopes to remain a resource for community solar market development.

Sincerely,

Leslie Ann Elder
Community Solar Access

New Jersey Solar Transition
BPU Docket No. QO20020184
Comments from CEP Renewables, LLC in response to the BPU Notice of August 11, 2020

Secretary Camacho-Welch:

The purpose of this letter is to provide comments from CEP Renewables, LLC on the above matter pursuant to the BPU's notice of August 11, 2020. We appreciate the opportunity to provide these comments.

CEP Renewables, LLC, with almost 20 years' experience in the solar industry, has developed approximately 100MW of utility scale solar projects in New Jersey and won the trust of leading companies in the renewable energy sector as well as medium and growing SMEs because of its expertise and knowledge of the local market.

Introduction:

The idea of solar on non-preserved farmland has provoked many strong reactions.

Owners of non-preserved farmland in New Jersey bristle at any restrictions regarding activities on their land. There are challenges to profitably operating a farm in New Jersey and many farmers welcome the idea of a steady source of income that solar would provide to help support their farming activities. Solar developers regularly point out they can install low cost solar as ground mounted arrays in scale that will help New Jersey achieve its emissions and renewable goals.

On the other side are supporters of open space and keeping farmland farmable in a state that is one of the most built out in the nation. These advocates argue open space is at a premium in New Jersey and other opportunities should be pursued to meet renewable goals. They also voice concern about farmland being leased or sold for solar development that would effectively eliminate opportunities to farm the land in a traditional way, pitting electrons against food production.

Like many policy debates, there is a place in the middle that New Jersey has not explored – solar generation co-existing with farming activities, known as "dual use" solar projects. The agricultural property is used for dual purposes simultaneously– traditional farming activities and the non-traditional farming of sunshine for electricity generation. This approach presents a major opportunity to support farming in New Jersey and help New Jersey develop solar projects that are respectful of New Jersey's strong desire to preserve open space.

Comments:

Adders: The idea of using "adders" is a favorable mechanism to incent the types of projects favored by the State. Adders should be available for dual use projects and would be embedded in the multiplier provided to dual use projects. There projects should be favored by the state since, in

addition to helping New Jersey meet its emissions and renewable goals, developing these types of projects helps farmland viability. Based on these considerations, dual use solar should receive a

fifteen-year fixed REC payment (similar to TREC design) with an adder/multiplier to recognize its costs and benefits.

There is a reason New Jersey is called the Garden State. While farming is a difficult proposition it is one the State has a strong interest in seeing succeed. Agriculture is an important component of the New Jersey economy and a point of pride for the State. Despite our size, the State is a top 10 producer for such items as cranberries, blueberries, peaches, bell peppers, spinach, and of course tomatoes. Our role in the regional market surrounding New Jersey is significant as the State produces more than 100 different varieties of produce appealing to large diverse markets in and surrounding the state.

Benefits versus cost: Solar energy has demonstrable value which should be recognized in the Successor Program. A few illustrations of this value are as follows:

- Merit Order Impact: Injecting solar energy into the grid at a fuel cost of zero puts downward pressure on the clearing price in the wholesale energy and capacity markets for electricity. This benefits all ratepayers. This impact has been recognized by the BPU in its review of energy efficiency programs.

- Emission free: Solar is emission free. New Jersey has suffered from poor air quality and this is an emissions free generation source. It is also carbon free, thus contributing to the fight against climate change.

- Economic multiplier effect: Solar is locally produced, creating jobs and economic benefit to the State, a fact also recognized by the BPU in its review of energy efficiency, and offshore wind energy projects. Solar also provides benefits to the grid, although quantifying how solar may defer distribution upgrades and/or provide locational grid benefits will be the subject of ongoing investigation and discussion with utilities as distributed energy resources (DERs) continue to play a larger role in generation. It is notable that in the NY REV proceedings, *distribution value* was recognized and given a placeholder as a "market transition credit," in the value stack for large scale solar with ongoing work to help more specifically quantify its value.

The SREC, and now the TREC, has both value components and cost components which have never been separately quantified.

A value and cost distinction is also important when it comes to formulating the adders to incentivize one type of solar application over another type of solar application (e.g. solar canopies favored over ground arrays). As discussed in the prior section, there is demonstrable value to enhancing farmland viability. While there may also be additional cost in some dual use solar projects (related to higher than usual elevation of the panels to allow for farming activities underneath arrays), any adder may be comprised of cost and value considerations.

Flexibility: For dual use projects, farmers know best how to use their land for agricultural activities. The State should not be overly prescriptive. Farmers should be given flexibility to experiment and learn how best to put their land to work by combining farming with solar arrays on the property.

In summary, with the solar successor program, New Jersey has an opportunity to find the right balance in using farmland to help New Jersey meet its emissions and renewable energy goals. Recognizing and allowing dual use applications with enough flexibility to ensure farmers can succeed in putting their land to the best agricultural use is a way to achieve the balance that is long overdue for farmers, open space advocates, environmentalists, and renewable energy developers.

Thank you for the opportunity to share our thoughts on this matter.

Respectfully submitted,

CEP Renewables, LLC

By:_____

Gary Cicero, Managing Member

Aida Camacho-Welch
Secretary
New Jersey Board of Public Utilities
Post Office Box 350
Trenton, New Jersey, 08625

RE: *Successor Program Capstone Report Docket No. QO20020184*

Dear Ms. Camacho-Welch,

ECA Solar is pleased to submit comments regarding the above-referenced Successor Program Capstone Report Docket No. QO20020184. ECA Solar, a leading solar developer and installer in the Northeast and mid-Atlantic, that specializes in large commercial rooftops, brownfields, and parking canopies. We are proud to be a contributor to the growth of the New Jersey solar market.

We are writing to encourage the Board of Public Utilities to consider certain policy changes for the Solar Successor Program. In particular, to embrace the Successor Plan Design Criteria "with an emphasis on community solar, rooftop and landfill resources, while minimizing use of productive agricultural and or forested lands."

It is possible that the Capstone Report underestimates the potential for solar rooftops in New Jersey. For instance, getting to the 12.2 GW target of solar by 2030 as outlined in the Integrated Energy Plan could be done exclusively thru New Jersey rooftops. Previous testimony to the Board of Public Utilities has compared Saudi Arabia and their oil reserves, to New Jersey and the vast amount of roof space. Some of the largest roofing companies in the world are headquartered in New Jersey.

Under the current regulations and rules, a large majority of commercial rooftops in NJ are simply being unused and will remain that way under the current policy regime. The question is why? For one, the majority of the commercial buildings in New Jersey do not have a significant on-site load and the current regime essentially requires behind the meter solar. Second, the average ground mounted system will produce much more energy than a rooftop because a ground mounts are typically directed due south, up to 25-30 degrees tilted south, and often include tracker racking systems that follow the sun. Whereas roof mounted and carport arrays, are always fixed tilt and up to 10 degrees tilted south. As a result, of this "production gap," the ground mounted arrays always dominate programs and the communities are forced to deal with the aftermath. We would

encourage the authors of the Capstone report to offer charts on the cost per kwh of output; instead of cost per watt, which is less valuable for modelling.

Under the current incentive regime. The Commonwealth of Massachusetts now has over 80-85% of the megawatts mounted on the ground; the majority of those are on greenfields. This fact has caused significant land-use controversy and backlash from rural communities that have been over-run with ground mounted arrays. Without the appropriate caps the ground mounted solar will inevitably dominate the State's landscape given they are cheaper to build and dominate the production gap. This is not the highest best use of these lands, whether it be farming, residential commercial or industrial. In addition, solar is not a useful land use for job creation.

We have the following recommendations to unleash the power accessory-use projects, including rooftop, in New Jersey while preserving open lands for conservation and higher uses.

- Establish a fixed incentive instead of a tradeable REC. Given the policy options listed on page nine (9) of the Capstone Report, we would recommend either the "Fixed Incentive" or "Feed in tariff", either could provide the fixed nature.
- Establish a long-term incentive with twenty (20) year duration; even if the incentive is less.
- Provide a dedicated carve-out for commercial rooftop solar, ideally with categories up to 500kw AC and up to 5 Megawatts AC. We would recommend that this for at least thirty percent (30%) of the Successor Program. This carve out is less important for the residential sector since the vast majority are already roof mounted.
- Establish a meaningful rooftop adder, at least $0.045 cents/kwh or more depending on size. Rooftop is one of New Jersey's largest untapped resources. This should be one of the highest adders, not the lowest.
- Eliminate any requirements for behind the meter systems and enhance the size of the Community Solar program. Most of the large commercial buildings and distribution centers have no significant energy usage on site, there is a need for a program that allows export-only arrays. These large buildings are in effect blocked from participating in the current program and wasting their vast space. "Standalone" roof mounted systems that are in front of the meter should be encourage with a carve-out and adder.
- Differentiating between Direct Owned ("DO") and Third Party Owned ("TPO") is largely irrelevant; this also has no bearing on the Renewable Portfolio Standard.

The implementation of the above policies within the Successor Program will have long lasting positive effects on the growth of the solar industry in New Jersey. They will also benefit the rate payer as NJ grows a stronger, more locally filled grid.

ECA solar thanks the Board for this opportunity and applauds its efforts in creating the Successor Program.

Kind Regards,

Todd Fryatt
President

ECA SOLAR LLC

613 Bangs Ave | Asbury Park, NJ 07712
EdisonEnergy.com

STATE OF NEW JERSEY
Board of Public Utilities
44 South Clinton Avenue, 9thFloor
Post Office Box 350
Trenton, New Jersey 08625-0350
Re: Successor Program Capstone Report Docket No. QO20020184

To whom it may concern:

Proposed Successor Program TREC Factors

The proposed TREC factors incentivizes Subsection T, Subsection R rooftop and Net metered non-residential roof and canopy. The common denominator among these high TREC Factor locations is re-use of space already dedicated to another purpose, or to rehabilitate otherwise unusable land (ie Subsection T).

Absent from the Cadmus report is a specific TREC Factor for floating solar.
Floating solar is generally located on reservoirs as the water surface is normally restricted, not accessible in most cases to fishing and pleasure boating and is solely dedicated to storage and treatment of drinking water. As such, use of existing reservoirs for floating solar is similar to Subsection T installation in that the spaces are already not usable for normal development. Additionally, several white papers have linked reservoir shading to reduction in harmful algae blooms. Where water utilities may previously have had to engage chemical control of algae blooms, shading (as that provided by floating solar) has a net positive effect upon the water quality of the reservoir.

Given the above, and that very few floating solar installations are in place, we suggest a TREC Factor of 1.0 to mitigate impediments to growth

Respectfully,

Daniel Grdovic
Senior Project Manager
Edison Energy

New Jersey Solar Transition
BPU Docket No. QO20020184
Comments from Gabel Associates in response to the
BPU Notice of August 11, 2020

Secretary Camacho-Welch:
Thank you for this opportunity to offer our thoughts on the Capstone Report.

Introduction

Gabel Associates, Inc. is an energy, environmental and public utility consulting firm with its principal office located in Highland Park, New Jersey. The firm provides its expertise to a wide variety of clients involved in virtually every sector of the energy industry. Our client list includes public and federal agencies, individual commercial and industrial end users, aggregated groups of customers, public utility commissions, power plant owners and operators, wholesale suppliers and utilities. We have successfully assisted public and private sector clients in implementing strategic energy plans and projects to reduce costs and enhance environmental quality.

Gabel Associates is deeply involved in all stages of renewable project development. We provide support to clients for project development activities, including feasibility studies; comprehensive evaluation of financial, economic, marketplace, environmental and regulatory issues; refined economic modeling; the development of financing and procurement administration; contract negotiations; project facilitation activities during the implementation phase; and renewable attribute sales and management in the PJM Generation Attribute Tracking System (GATS).

We have been involved in the development activities of **over 200 renewable projects** including assisting in the development of the region's most significant solar projects such as the Princeton Landfill Project, Delaware Valley High School District, Readington School District, the Atlantic City Convention Center, Rutgers University, 125 New Jersey county facilities, and many other renewable projects. We have supported the development of many landfill gas-to-energy projects including Burlington, Atlantic, Middlesex, Ocean and Salem Counties. We have also supported various on and offshore wind projects.

The firm is equally involved in the regulatory and policy side of the energy industry. Gabel Associates was the first energy agent registered with the State of New Jersey pursuant to the Electric Discount and Energy Competition Act (EDECA), and we continue currently as a registered energy agent in good standing with the New Jersey Board of Public Utilities (Registration No. EA-0021). In addition, in December 2002 Gabel Associates became the first registered energy consultant in the State. We are also registered as a Private Aggregator with NJBPU.

Gabel Associates' two principals, Mr. Steven Gabel and Mr. Robert Chilton, were involved in electric and natural gas utility regulatory and ratemaking for many years in the regulatory arena before entering private practice. Both are economists with utility rate design and tariff expertise and over 35 years of energy experience. Mr. Gabel and Mr. Chilton were intimately involved in all phases of the deregulation of the energy industry in New Jersey, commencing with the development of New Jersey's off-tariff rate agreement (OTRA) law in the mid-1990's and subsequent deregulation law (EDECA) enacted in 1999.

Gabel Associates continues to be directly involved in the development of renewable energy policy: Firm President Steven Gabel served on the Governor's Renewable Energy Task Force, which is the basis for New Jersey's RPS, and the firm continues to serve on various committees that help determine the policy direction of the renewable

energy market. The firm provides up-to-date market intelligence and insight with respect to regulatory activity that has the potential to trigger changes in the market.

Gabel Associates has also been instrumental in developing legislation surrounding renewable project development and renewable market regulation. The firm was directly involved in the development and negotiations surrounding the Solar Energy Advancement and Fair Competition Act, signed into law in New Jersey in January 2010. This law placed the solar RPS obligations into law and substantially increased solar requirements. The firm provided analytical support for the bill including comprehensive analysis surrounding ratepayer and economic impacts. The firm was an active participant in the second major piece of solar legislation in New Jersey signed into law in July 2012 (S-1925). This law accelerated the RPS solar requirements in an effort to absorb the significant oversupply of SRECs and help stabilize the market. In addition, most recently we were involved in the Clean Energy Act (A3723), which was signed into law by Governor Murphy on May 23, 2018 and has a significant impact on the SREC market.

It is with the above qualifications that we offer the following responses:

Topic 1: Recommended Incentive Structure Design

Question 1.a : The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively- set incentives for smaller projects. Do you agree with this recommendation? Why or why not?

Response:

The Capstone recommendation that the BPU distinguish between "small" and "large" projects should be amended to change this distinction. The appropriate distinction is between net metered (or on-site), which include Community Solar projects and certain grid supply projects. The "large vs. small" distinction used by Capstone to determine whether a project gets a fixed incentive payment or undergoes a competitive action process is inappropriate relative to the BPU and State policy, which is built around net metered vs. grid projects.

Instead of separating project types by MW size, the BPU should structure its incentive structure as follows:

- Net Metered Projects: fixed fifteen-year incentive payments with multipliers for different project types (a structure similar to the TREC program.)
- Open Space[1] Grid Projects: a competitive auction approach
- Preferred Site Projects: Fixed fifteen-year incentive payments with multipliers for different project types (a structure similar to the TREC program.)

This approach recognizes the key priorities of New Jersey in land use, economic development, and

[1] "Open Space" includes farmland that is not otherwise prohibited for solar use under New Jersey law; and other open space that is not deemed a Preferred Site Project.

environmental and renewable energy policies.

Land preservation and development that is respectful of New Jersey's dwindling open space is vitally important. Including Open Space grid projects in a competitive procurement process will allow the BPU to set size and land use standards and restrictions, consistent with New Jersey land use, agriculture, and environmental goals. This will allow the BPU and the State to manage the growth of grid projects in New Jersey.

a) Net metered projects (including Community Solar projects) should have a fixed incentive

Net metered projects have historically been at the heart of New Jersey's solar program: for almost two decades, net metered projects have allowed individual customers to reduce their energy costs, improving job growth and economic competitiveness and allowing public sector units to reduce operating costs to the benefit of taxpayers. New Jersey's electric utilities are not permitted under state law to provide rate discounts, instead, net metered projects are one of the primary methods for New Jersey energy users to reduce their costs.

Net metered projects should not be required to enter a competitive solicitation to sell its Successor SRECs. Instead, an approach similar to that used for TRECs (a set fixed price paid over a fifteen-year period through an administrator engaged by the EDCs) should be used in the Successor Program for net metered projects.

Because net metered projects tend to be smaller than grid projects, and because they are central to New Jersey's solar development policies, these projects should not be required go through an "auction" process. This requirement would substantially and significantly deter project development. BPU should fix the SREC price administratively based on analysis and projects would then be developed under the multiplier system. To protect ratepayers the values should be reset every three years to track costs and markets.

Making net metered projects "jump through the hoops" of a competitive solicitation process increases transaction costs as a percentage of total project costs and will hurt project development and impose costs on ratepayers. Of particular note, requiring a competitive bid process for determining the incentive is especially difficult for public sector projects that must undertake complex public procurement of solar projects. Specifically, if BPU were to require an auction, it creates a severe "chicken and egg" development problem: when a public unit conducts its own procurement process to designate a solar developer, it will be unable to determine which solar developer to award the solar project because it not know the final pricing until after the project competes in a BPU SREC auction; and at the same time, the developers bidding into the public unit will not be able to bid into a BPU SREC auction until it is selected by the school district. In short, an auction process will make it very difficult for a public unit to develop a project.

b) Preferred site projects should have a fixed incentive

Preferred site grid projects cover an array of project types that will enable New Jersey to meet its substantial solar goals and minimize the use of open space. These are projects on the following sites: brownfields, landfills, quarry sites (land or water based), dual use (preserving legitimate farm use underneath solar facilities)-- all of which should be should be prioritized in New Jersey solar development ahead of open space grid projects.

The BPU should develop a definition for dual use which assures that such projects meet New Jersey's land

use, agricultural, and environmental goals.

As with net metered projects, an approach similar to the TREC approach should be developed, based on cost considerations and the preference for these types of projects. These preferred site categories present an important opportunity for New Jersey to reach its large solar goals in a way that limits use of open space.

c) Open space grid projects should be priced through a competitive process

The BPU should have a competitive process for open space grid projects. As part of this process, there should be appropriate land use considerations and restrictions in place, including relative to farmland and open space development.

To simplify program administration for large projects, auction results in the first year could also set the price for the following two years. After the first year, projects would be approved on a first come, first served basis using an application queue similar to the current SRP applications.

Question 1.b If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

Response:

See response to 1.a.

Question 1.b.i: Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

Response:

See response to 1.a. As detailed in that response a more appropriate differentiation is between a) on-site projects (including community solar projects); b) grid projects on open space; and c) other preferred site projects.

Question 1.b.il: If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

Response:

See response to 1.a., net metered projects should not be subject to a competitive solicitation, only wholesale projects on open space should be subject to such a solicitation.

Question 1.b.iii: Alternatively, should all net metered projects rely on administratively-set incentives instead?

Response:

Yes, see response to 1.a for details.

Question 1.b.iv: If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

Response:

See response to 1.a.

Question 1.b.v: How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

Response:

See response to 1.a. for details; subsection t projects should review an administratively set incentive.

Question 1.c: If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

Response:

Not applicable as we agree.

Question 2.a: If NJBPU were to implement administratively-set incentives: How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

Response:

The incentive value should be re-evaluated and potentially reset (for projects thereafter developed) every three years. Three-year reviews will enable the BPU to track market and protect ratepayers. More frequent reviews are unnecessary and could subject the solar market to frequent regulatory delays.

Question 2.b: Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

Response:

The BPU should differentiate by: a) project type; b) EDC service territory; and c) general customer class (residential, commercial etc.).

Question 2.c: How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

Response:

Cost analysis will consider the level of payment needed to meet project return requirements and other policy considerations (limiting overpayment) and frequent (three year) reviews will build in efficiencies that occur in the market.

Question 2.d: In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

Response:

15 years is appropriate for all. Currently, public projects for schools and municipalities are limited to a fifteen-year PPA term, so the 15-year term for qualification life is an appropriate match.

Question 3.a: If NJBPU were to implement incentives based on a competitive solicitation: How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

Response:

As discussed in the response to 1.a., only open space grid projects should be required to competitively propose and subject to the solicitation. The solicitation should include non-price criteria and pre-qualification to protect New Jersey's environment and land use concerns. Projects that would violate open space and environmental standards (to be developed) should not be permitted to offer into the solicitation. The size of the solicitation should be set by the BPU considering the level of activity in other markets and relative to how much this sector is needed to meet the RPS after consideration of the other sectors (net metered and preferred site projects).

Question 3.b: Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

Response:

Projects should remain merchant for capacity and energy (participating in PJM's competitive market as other generators do). A fixed long-term incentive payment will be sufficient to facilitate project financing.

Question 3.c: How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single- clearing price system.

Response:

A single clearing price tends to allow for greater price recovery. In the context of this market, both approaches can work to protect ratepayers. All bidders should be required to sign "non collision" certifications and the BPU should review "market power" issues in each bid to assure there is adequate competition.

Question 3.d: Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

Response:

No.

Question 3.e: How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

Response:

If the BPU is concerned about the burden of managing continuous solicitations every year, it should consider holding a competitive solicitation in Year 1 and then using those results to set incentives for the following two years as well.

Question 3.f: Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

Response:

All open space grid project should participate in the same auction.

Question 3.g: In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

Response:

Yes.

Question 3.h: New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

Response:

The premise in the question (that incentives have historically been delivered through BPU programs) is not accurate as solar incentives have not been delivered by BPU since the incentive (SRECs, TRECs, or RECs) have been paid by suppliers or by EDCs. Such an approach should continue to be utilized.

Question 4: How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

Response:

For larger projects, safeguards should be put in place that would not allow for "queue sitting" blocking projects that are shovel ready. BPU should use a combination of tools - from requiring escrow payments to enforcing reporting requirements with strict consequences for failure to meet project milestones due to actions that are within a project developer's control. BPU, in combination with the utilities, may consider consequences such as moving delayed projects to the "back of the interconnection queue," to allow for projects that are further along in the development process to come online.

Question 5.a: The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models. Generally, how can this flexibility be incorporated into the design of the Successor Program?

Response:

Emerging technologies and approaches should be incorporated into the "preferred site" category as discussed in the response to 1.a. In addition, a review of the fixed incentive every three years will permit changes and additions to reflect the current markets and technologies.

Question 5.b: How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

Response:

As discussed, a review of incentive levels every three years would allow for then current tax treatment or other changes to be modeled.

Question 5.c: How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

Response:

For the fixed incentive this can be captured within the periodic review conducted every three years as recommended in response to other questions. For the projects addressed through an auction, this can be addressed in the term of the competitive solicitation.

Topic 2: Modeling

Question 7: Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

Response:

The breakdown of SAM cases seems appropriate for categorizing the current fleet of installed capacity. However, the Successor Program should be more forward-looking. As such, this list should be expanded to include emerging approaches and more beneficial project types as discussed in the response to question 1.a. which recommended a separate category of fixed incentives known as preferred use project types. These types of projects require greater incentives to compensate for development risks, up-front investment costs and the policy benefits of these project types. Considering the solar capacity build rate required to support New Jersey's long-term goals, it is critical to aggressively pursue the alternative building sites and construction designs that are under-represented in the current installed base.

The following project types should be included and analyzed: brownfields, landfills, dual use, and land and water-based quarry sites. These project types should receive an administratively set incentive similar to the TREC payment structure.

As part of on-going program incentive review efforts, the BPU should evaluate the continued appropriateness of the project categorization list to be used in incentive-setting analysis.

Dual use projects are solar projects built on agriculture sites which allow the continuation of agriculture on the site in a manner that is in keeping with appropriate land use and legitimate agriculture use. Specific standards defining dual use should be developed by the Board, in consultation with the Department of Agriculture, the Farm Bureau, and the Department of Environmental Protection to assure that such dual use supports and protects New Jersey farming.

Question 8: Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

Question 8.a: Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

Response:

As a starting point for the Solar Successor Program, many of the modeled system sizes seem reasonable and representative of historical installations. However, Gabel recommends that Cadmus change the modeled capacity to more closely align with the 50% median rather than being influenced by the overall Average. The Average value can be strongly influenced by a few, non-representatively large projects. Specifically, we recommend the following Proposed Modeled Capacity:

Copy of "Table 13. Modeled Capacity" with Proposed Changes

	Capacity (kW)			
SAM Case	**Median (50th Percentile)**	**Average**	**Current Modeled Project Capacity**	***Proposed Modeled Capacity***
Historical SAM Cases				
Comm_DO_Ground_lg	3,448	3,316	3,500	*3,500*
Comm_DO_Ground_med	441	494	500	*450*

Comm_DO_Roof_lg	1,750	2,440	2,000	*1,750*
Comm_DO_Roof_med	261	355	350	*300*
Comm_DO_Roof_sm	31	37	35	*30*
Comm_TPO_Carport	624	1,679	1,500	*650*
Comm_TPO_Ground_lg	1,936	3,866	3,500	*2,000*
Comm_TPO_Ground_med	382	460	450	*375*
Comm_TPO_Roof_lg	1,971	2,281	2,000	*2,000*
Comm_TPO_Roof_med	121	257	250	*125*
Comm_TPO_Roof_sm	27	36	35	*25*
Grid_Ground	4,799	9,104	7,000	*7,000*
Resi_DO_Roof	9	10	8	*8*
Resi_TPO_Roof	8	8	8	*8*
New SAM Cases				
CS_Ground	3,150	3,457	3,500	*3,150*
CS_Roof_lg	1,907	2,061	2,000	*2,000*
CS_Roof_med	640	628	650	*650*
Grid_Ground_OOS	n/a	n/a	10,000	*10,000*
Grid_Roof	n/a	n/a	2,000	*2,000*

Question 8.b: Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

Response:

Gabel encourages Cadmus to carefully consider input from the "boots on the ground" developers that are currently active in New Jersey solar development. In addition, cost factors that are specific to community solar, including the unusual costs of billing and customer enrollment should be included in the analysis. **Recognition of these cost elements is critical to the success of community solar is enrolling low- and moderate-income customers, a key policy goal of the BPU.**

In addition, the higher development costs and the need for larger savings should be incorporated into the analysis for net metered projects serving public schools, municipalities, and counties. **The BPU should take special interest in supporting development at these locations as these projects stabilize property taxes and support local efforts to "go solar" and show the communities that solar works. The BPU should ensure that the incentives support this development.**

Question 8.c: Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

Response:

Although the financial parameters may be reasonable, they are subject to significant uncertainty and cannot adequately encompass the variety of financing structures used in the market.

Gabel recommends that Cadmus conducts the SAM analysis without financing inputs relative to the capital stack, i.e., Capstone should analyze unlevered (IRR) rather than levered IRR. This would be more consistent with the financial community's project financial analysis and would make the analysis more uniform.

Question 8.d: Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

Response:

Gabel agrees with Cadmus' approach to modeling only kWh-based utility charge savings.

However, the PPA revenue assumptions used by Cadmus are too high and do not match established market considerations, neither in terms of the discount (vs. retail) nor the escalation assumptions.

The 15% retail discount assumption is much too low. Discounts from non-residential on-site solar are currently in the 30-50% range and a minimum of 40% should be used in the analysis. There are several drivers for this assumption.

- The PPA savings are only on a portion of the bill for the portion of electricity coming from the PPA (which is typically less than 100% of the electrical load). For a commercial tariff entity, offering 15% discount on that portion will yield much less than 10% discount on their total bill, which is not enough to attract interest or continue the growth of solar behind the meter.

- Potential solar site managers and owners are busy and there is a significant opportunity cost to pursuing a solar project. If they are going to take on the added workload involved in dealing with project development, construction crews and other site-disruptive activities, it needs to be worth their while. Except for fully staffed corporations, end users are generally staffed by individuals with multiple responsibilities (i.e. they are finance or facility managers) whose professional lives are continuously focused on a wide range of activities, concerns, and daily events. 15% savings simply does not get their attention.

Also, the 2.4-2.5% escalation assumption is excessive. Current PPA escalation rates are generally 1.5% and lower (even 0%). Although the retail rates are *forecast* to escalate, New Jersey retail rates have been flat (even slightly declining) for the past decade. It is not a reasonable assumption that most PPA recipients would accept anything more than a modest escalator. Gabel suggest using 1% for this assumption in the modeling.

In the modeling on PPA revenue, Cadmus needs to incorporate the difference between reality -- that retail rates are likely to escalate vs. the *perception* of reality – that PPA recipients have seen flat rates for the past ten years and do not want to take the risk that flat electric rates could make savings evaporate.

Question 8.e: Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

Response:

The specific energy production (SEP) capacity factor for ground mount installation (16.2% to 16.5%) seems reasonable, but capacity factors for the other project types are too high, as shown in Table 15. Year 1 SEPs and Capacity Factors by Broad Project Type (page 37). These values range from 14.2% for Residential Roof to 15.7% for Commercial Roof which is higher than the 13.2% used in 5.1% SREC Milestone analysis.

While it is reasonable to assume that newly installed systems will outperform the current fleet average, except for the ground-mount systems, Gabel recommends altering the system design assumptions (tilt, azimuth, system losses) to reduce the capacity factor assumptions by 1% for each project type. For example, instead of 13.2% for Residential Roof installations, 12.2% is more appropriate for the modeling analysis.

Gabel agrees with the 0.5% annual energy degradation rate.

Question 8.f: Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

Response:

Gabel has no comments on the ITC safe harbor provisions and encourages Cadmus to carefully consider input from the "boots on the ground" developers that are currently active in New Jersey solar development.

Question 9: Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

Response:

Portions of the wholesale energy and capacity calculations are overly optimistic, resulting in a combined energy and capacity price that is higher than it should be.

PJM Capacity payments are subject to non-performance risk which should be incorporated into the average assumed price. Gabel recommends discounting the Capacity revenue portion by 25% to reflect this market risk.

Also, PJM Capacity auctions are held three years in advance, and it is unlikely that a solar developer will commit to capacity obligations until the project is in an advanced stage of development. As such, capacity payments based on BRA results should be excluded from the first 2 years of the project's financial analysis.

The split between energy and ancillary revenue is not detailed but combined as "Energy (+ Ancillary Services)." Unless they are large, most grid solar projects are unlikely to participate in ancillary service markets and that revenue should be excluded from the calculation.

Furthermore, favorable project financing is often dependent on PPAs. Because solar generators are not dispatchable and intermittent, there is typically a significant discount applied to the expected average energy value. As such, Gabel recommends discounting the Energy revenue portion by 25% to reflect wholesale PPA discount.

Question 10: Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Response:

Gabel feels that the different approaches will provide the NJBPU with solid guidance on determining annual MW targets required to stay on path to achieve New Jersey's solar goals. Referring to Figure 14. Comparison of 2019 EMP Target and Successor Program Modeled Installation (page 80), Gabel suggests that BPU set MW targets closer to the "Bottom-up Forecast for Successor Tranche" values. These targets are more aggressive in the early years and would secure more ITC value for New Jersey ratepayers.

Regarding the Legislative Cost Cap

The solar goal is a critical component to the Governor's vision and mandate for a clean energy future in New Jersey. As the annual new solar construction requirements climb, it is important that BPU stay under the cost cap required by the Clean Energy Act to protect ratepayers. However, it is equally important that the BPU carefully consider ALL of the costs and the direct electric ratepayer benefits in its cost cap calculations. Not including these benefits would be unfair and discriminatory against solar energy. These benefits include:

- Renewable generation provides merit order benefits on both wholesale energy and capacity prices; renewable energy (with zero fuel cost) reduces the supply stack eliminating higher cost generation from the clearing prices and benefiting all ratepayers. Market clearing prices would be higher in the absence of renewable generation and these benefits should be incorporated into the calculations. The BPU recently accepted such benefits in its calculation of energy efficiency and should be consistent in this matter.

- Behind the meter solar installations provide cost savings to those customers. This is a ratepayer benefit as the statute requires all ratepayer benefits to be calculated.

- Renewable generation provides hedge value against the volatility of fossil fuel prices. These and other benefits must be considered to perform a full and fair cost cap calculation.

The denominator in the cost cap calculation should include ALL paid for electricity, inclusive of all supply, delivery, utility, third-party supplier, and RPS incentive charges. Further, all renewable PPA payments, behind the meter solar self-own costs, and electricity cogeneration costs should be included in these calculations.

This approach was modeled by Gabel and provided during the January 9, 2020 comment period.

Question 11: Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

Response:

While Gabel appreciates the potential value of diversifying ownership structure, possibly with incentivizing "DO" projects slightly higher than "TPO" projects, we feel that this would be an unnecessary complication and recommend that NJBPU should not differentiate.

Question 12: Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

Response:

Gabel appreciates the transparency and public-sourced modeling used by Cadmus in analyzing New Jersey's Solar Successor Program. The open access to the model and input assumptions allows stakeholders to provide more meaningful comments and is a welcome addition to the stakeholder process. However, it appears that the Cadmus/OCE has released only the analysis for only four of the many project types. To allow for due process, transparency and confidence in the results, **all sets should be released for review and comment.**

Looking forward, the SAM model could be used as the basis for setting incentive values if there if there is full disclosure of modeling and a reasonable (not necessarily full) consensus among stakeholders as to the appropriate model input assumptions. The SAM model seems to produce reasonable results, but it is critical that all inputs and modeling available for review and are consistent with the current market and cost considerations. **Prior to moving this matter to the BPU agenda for decision, the BPU should release the incentives which staff intends to recommend and the full modeling sets that support these recommendations so stakeholders may provide comments.**

Question 13: Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

Response:

Regarding Community Solar PPA Escalation

It is critical that Community Solar installations be modeled with a lower PPA escalation rate. Many of the costs that will drive retail rate increases over the next 15 years are not offset by Community Solar net metering, e.g. OREC charges, SBC, and ZEC charges. Gabel recommends that Community Solar projects receive a 0% escalator in the SAM modeling to reflect this market reality.

Regarding PPA Price Calculation Methodology

On Page 45, "Cadmus used the higher-tier rate where applicable and weighted seasonal rates by approximate shares of solar energy generated in the respective months…" to determine a single, annual PPA starting price. This is inconsistent with how net metering works for most customer sites. Many commercial and industrial customers have relatively flat energy use throughout the year and bank excess solar summer production for net metering credit during winter months. Gabel recommends that Cadmus calculate the starting PPA price by using monthly weighting of the appropriate load consumption patterns for each project type rather than the monthly solar generation.

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Comments of IGS Solar on the

2020 New Jersey Solar Transition Draft Capstone Report

Docket No. QO20020184

September 8, 2020

IGS Solar ("IGS" or "IGS Solar") appreciates the opportunity to provide written comments on the 2020 New Jersey Solar Transition Draft Capstone Report. We are very active in the New Jersey solar market, and we develop, finance, and operate both commercial and residential systems. We work with local partners in the development and installation of these projects. We focus primarily on the behind the meter markets.

IGS applauds the goal of establishing the Successor Program framework to meet New Jersey's target to install 8GW by 2030. By establishing a flexible but predictable framework, New Jersey will send clear, long-term signals to the market. The resulting stability will allow the industry to scale and provide good jobs as well as sustained declines in costs that are within a company's control.

Topic 1 – Incentive Structure Design

Question 1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale systems ad fixed, administratively-set incentives for smaller projects.

IGS supports administratively set pricing for customer-sited net metered projects of all sizes.

IGS supports a fixed 15-year incentive as the initial program design. We encourage the BPU to organize workshops to discuss advantages and disadvantages of moving different market segments to a Total Compensation paradigm. In general, behind the meter systems should stay as a Fixed Incentive.

IGS does not take a strong position on whether larger non-net metered should be procured via a solicitation but does note that there are many challenges in getting robust results from a solicitation, including a 'race to the bottom' resulting in projects ultimately not getting built.

Furthermore, although not contemplated in the Draft Report, IGS cautions the BPU against using results from a solicitation as an input in the administratively set pricing for two main reasons – developers may bid in a portfolio price, and thus the bid prices do not accurately reflect the individual system size; and bidders often 'lead the duck' and bid pricing that will be used to build the projects a couple years into the future.

Question 2) If the BPU were to implement administrative set incentives:

Any changes in incentive levels should be transparent, predictable, and with sufficient lead time for businesses to react. For commercial systems, the development cycle is long – around 12 months.

Therefore, any reductions in incentive levels should ideally be known 12 months ahead of time; at the very least, 6 months is needed and such changes should take place on a preset timetable (e.g. once a year on a given date). The build cycle for residential systems is shorter and 6 month lead time in any incentive reduction is sufficient.

The BPU should differentiate incentive levels based on system size, utility territory, location and offtaker. We point to the Massachusetts SMART program as an example of how to set this up.

IGS supports a 15-year qualification life for systems.

Question 4) Queue management and speculative projects

Due to the very different nature of the administratively set pricing and competitive bidding as well as the different nature of project development in different market segments, the BPU should establish appropriate maturity requirements for competitively bid projects, customer-sited projects[1], and non-customer sited projects. For customer-sited projects, the current SRP requirements are appropriate project maturity requirements.

Due to the flow nature of the residential business, it is critical that there are no breaks in the availability of the incentive program for this segment. Shoud the BPU set annual targets, the recent market run rate for residential systems should be used as a minimum for this segment – 150MW/yr.

Topic 2: Modeling

IGS provides the following feedback on modeling input assumptions.

- The capacity factor assumed for residential (1,247) and commercial (1,376 – 1,419) systems is overly optimistic.

IGS monitors thousands of residential systems in New Jersey. Based on the performance of this portfolio, 1150 kWh/kW is the average system performance. IGS recommends that the BPU use this for modeling residential incentive levels.

Additionally, IGS reviews many commercial systems each year for New Jersey. Based on this knowledge, we believe that the assumptions for commercial rooftop and ground mount are overestimate actual performance by at least 100kWh/kW. We believe that the BPU should reduce the system performance inputs accordingly.

- Build cost assumptions should use the 75th percentile rather than the 50th percentile.

- PPA rates and escalator assumptions for commercial projects are too high.

[1] Customer-sited project is used to refer to a system that is located on the customer's property – net metered C&I and residential projects are customer-sited.

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Based on our experience with developing and financing commercial systems in New Jersey, the PPA rate and escalator assumptions used by Cadmus are not realistic. Rather, IGS recommends that the BPU use a PPA rate of 3c to 3.5c and either a zero or 1% escalator for this input.

- The BPU should use an unlevered IRR rather than a levered IRR.

Using a levered IRR introduces significant complications and additional assumptions. It also assumes that there is only one type of investor – one that will hold the system for 25 years and has a specific debt strategy. Furthermore, the market compares projects based on unlevered IRRs. Therefore, IGS recommends that the BPU use an unlevered IRR target in its modeling.

- The BPU should not assume that projects are 'safe harboring' panels.

In setting incentive levels for a given year, the BPU should assume that projects receive the ITC currently available in that year rather than assuming that panels have been safe harbored. Making the assumption that projects have safe harbored panels would give those larger companies that can afford to safe harbor an undue competitive advantage, cutting out much of the industry and especially smaller companies.

Sincerely,

Katie Rever
Director, Legislative and Regulatory Affairs
IGS Solar

Jersey Central Power & Light
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September 10, 2020

VIA ELECTRONIC MAIL ONLY

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue
Trenton, New Jersey 08625
solar.transitions@bpu.nj.gov

Re: New Jersey Solar Transition
Successor Program Capstone Report and Staff Request for Comments
Docket No. QO20020184

Dear Secretary Camacho-Welch:

On behalf of Jersey Central Power & Light Company ("JCP&L" or the "Company"), please accept this letter as JCP&L's response to the Cadmus Capstone Report and request for comments issued by the Staff of the New Jersey Board of Public Utilities on August 11, 2020. JCP&L thanks the Board for this opportunity to offer comments and respectfully requests leave to file these comments out of time. The Company has been participating in New Jersey's solar transition process and looks forward to continuing its work with stakeholders as New Jersey moves towards its solar market of the future. JCP&L offers these limited comments to provide its insights based on the Company's experience with New Jersey's solar market, solar renewable energy credit ("SREC") financing programs, and net metering.

I. The electric distribution companies' ("EDCs") experience with SREC-based financing programs demonstrates why the solar successor program should not be structured as a financing incentive directly from the EDCs.

There are a number of reasons that solar incentives should not be delivered through project-specific contracts with the electric distribution companies ("EDCs"). First, based on its experience with the SREC-based financing programs, JCP&L does not believe that there would be any appreciable difference in financing costs through the use of project-specific contracts with the EDCs. The Company offered two iterations of an SREC-based financing program in which scheduled solicitations resulted in a wide range of fixed price SREC contract values. While JCP&L has no direct knowledge of how many projects in the program relied upon the SREC purchase contracts in order to secure financing, the Company did notice a substantial number of projects where construction had commenced, and even projects that were substantially completed, before execution of contracts for the program. Based on this activity, it can be surmised that these projects either did not need the security of a fixed price contract to obtain construction financing or were able to finance construction through other means. Still, the structure of these fixed price

contracts greatly benefited the solar developers with a long-term, stable SREC price, which is many times higher than current market prices. In the end, these benefits for developers participating in the regulated utility program are essentially paid for by New Jersey's ratepayers. JCP&L discourages the Board from using a similar construct for the solar successor program.

It is also likely that projects relying on project-specific financing from the EDCs would experience unnecessary construction delays because of the regulated nature of the offering. As an initial matter, the EDCs would be required to file a program for approval by the Board before implementation of any such program. Additionally, as with the SREC-based financing program described above, any such program requires a reasonable amount of time for processing within the process for project approval. For example, the SREC-based financing program held solicitations every 100 to 120 days, resulting in projects having only a fixed window to submit applications for financing approval. After submission of bids, there was also a time period for bid review, which was then followed by approval at a Board agenda meeting. Many times, this process resulted in up to six months elapsing between the time a solar developer proposed a project to a client and the ultimate contract approval. A similar process, and similar timeframes for application submittal, receipt, review, and selection, would likely be required for a program offering project-specific funding from the EDCs.

II. Out-of-state solar projects should be allowed to participate in the solar successor program.

Board Staff's request for comments seeks feedback on the Energy Master Plan's finding that out-of-state utility-scale resources that are deliverable to New Jersey are part of the least cost path to reaching 100% clean energy and, specifically, asks for feedback on whether stakeholders agree or disagree with allowing out-of-state resources to participate in New Jersey's solar program. JCP&L does not object allowing out-of-state resources to participate in New Jersey's solar program. As these projects are deliverable into PJM and the EDCs have access to them via the PJM auctions, New Jersey's customers will continue to benefit from such projects although they are located out-of-state.

III. New Jersey's net metering construct needs to be re-evaluated.

The recommendations in the Capstone Report note that the Clean Energy Act's milestone for net-metered customers will be reached within the next several years and concludes that "[t]his trigger (or the run-up to it) would benefit from broad discussions within the industry regarding policy paths for net metering."[1] JCP&L agrees that net metering is ripe for replacement or restructuring. In the current construct, the benefits to participants of net metering are assessed against the ratepayers who either do not wish to, cannot afford to, or cannot install their own solar generation. However, the Company does not believe that an expansion of remote net metering is the best route to fixing these issues because there is no associated load reduction from remote net metered participants. If the State's goal is simply to maximize solar production and not to reduce load, a more efficient and cost-beneficial way to reach this end is through utility-scale solar. By

[1] Capstone Report at p. 87.

relying on utility-scale solar, the State could increase solar production without relying on the ratepayer subsidies required for remote net metering.

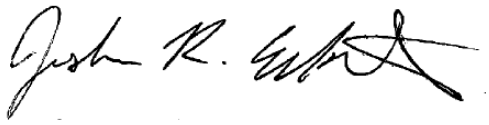
IV. Working groups should be created to address the various issues associated with New Jersey's transition to a solar successor program.

The Capstone Report recommends that the Board convene focus groups of technical experts and stakeholders on a regular basis in order to "provide a transparent, effective means to address several recommendations discussed, including interconnection, siting, and related programs." The Company agrees that stakeholder groups with the involvement of the EDCs are advisable when it comes to working through the various issues, especially those related to interconnection and project siting, that must be dealt with during New Jersey's transition to a solar successor program. JCP&L appreciates the opportunity to be a part of this process and looks forward to continuing its work with the Board on this important issue.

* * *

JCP&L again thanks the Board for the opportunity to offer comments on these issues. Please do not hesitate to contact me should you have any questions.

Respectfully submitted,



Joshua R. Eckert

I thank and congratulate the BPU & staff for your comprehensive Solar Successor stakeholder process. I am proud of what you are accomplishing in so little time.

The goal of New Jersey is to encourage customers to install PV or participate through community solar projects while achieving the lowest cost to ratepayers, to allow for effective competition and do so in as simple and transparent manner as possible.

The issue for the Successor Program is whether the incentive levels should vary by EDC to reflect the different NEM compensation. I agree with the general consensus of yes. While-EDCs have different rate structures due to different economics, solar incentives should be adjusted to respond to each project's economics. As Scott Weiner noted there is a distinction between compensation and incentives.Tailored incentives reflecting the differing costs among EDCs makes sense. We want PV to be fairly and widely dispersed throughout the entire state. However, the BPU should work to make the EDCs Renewable Energy (RE) tariffs as similar as possible.

The EDCs interconnection costs can be substantial. So it makes sense that large commercial projects finance the additional interconnection and grid costs. However, smaller residential and commercial, roof & canopy solar should be treated differently. Distributed solar located at the load has no line loss plus will help with reliability issues during/after extreme weather events. The BPU should study how other states handle these costs and how to best mitigate these costs/techniques. The BPU should consider how to socialize the costs for public entities and possibly for residential customers.

The New Jersey Conservation Society was right on point and in line with the Energy Master Plan's (EMP) goals that ground mounted locations should be strictly limited. New Jersey is expected to be the first state to totally "build out" - and within the next 30 years. Historically, New Jerseyans pass every Green Acres and Farmland Preservation ballot question because we want to protect our open land. The EMP clearly emphasizes that solar should be steered to rooftops, carports, brownfields and landfills and away from open space. New Jersey still needs to meet our farmland preservation goals and, until that time, I recommend that very little, if any, " marginalized" farmland be used for large ground mounted solar farms. I urge that a new work group be established - with the DEP and the Department of Agriculture - to investigate what "marginalized lands" might be utilized. That workgroup should also include environmental and open space advocates in addition

to agricultural interests. A pilot or two might be allowed for joint agricultural/solar use, e.g. a pig farm. And, because "carbon sinks," such as forests, woods and wetlands help lower carbon dioxide, they should not be used for any solar development.

As previously recommended, to be most efficient, the BPU should, as soon as possible, require whole building EE Audits before installing EE, as well as installing EE before installing PV. While transitioning to this whole building policy, the BPU should begin now with LMI homes as a priority. LMI have higher energy costs per square feet because they tend to be in much older homes lacking in energy efficiency improvements. Higher incentives would reduce the energy costs to these LMI homeowners. As a side benefit, I would expect that LMI PV programs, as well as LMI Energy Efficiency (EE) Programs, would likely help lower the costs of the Universal Service Fund.

In addition to benefiting LMI via Community Solar, LMI Third Party Owners (TPOs) should be enabled to play an important role in New Jersey. For instance, PosiGen has proven to be quite successful in Louisiana and Connecticut. The same would almost certainly be true for New Jersey if handled appropriately by the BPU. So that LMI homeowners can also benefit from solar, I encourage an additional incentive for projects that focus on LMI homes. Such incentives are currently in place in numerous other states, e.g. Connecticut, Illinois, New York. Also the current barriers that prevent coordination between the Comfort Partners Programs and solar providers should be eliminated. I note that PosiGen does EE work before installing the PV.

Cadmus assumed that ground-mounted PV would be used in the future for Community Solar, but, they should not so assume. The BPU has always been clear that open space should be avoided and that rooftops, parking canopies, landfills & brownfields are the preferred locations in New Jersey for PV. Solar incentives should be given for LMI, Community Solar, landfills, brownfields and public entities. In addition, disincentives should be assigned to solar proposed for open space and wooded areas.

In addition to incentives, the financial benefits to the grid should be real and measurable.

I concur with Cadmus in their recommendation to maintain flexibility for the BPU to adjust incentives.

The near future will clearly require us to pair solar with energy storage. With smart inverters next year plus increasingly more extreme weather events, customers will want and will insist upon energy storage with solar PV. The BPU should plan now on co-locating solar and storage going forward. I expect that PV + smart inverter + battery storage would likely lead to more PPAs. The BPU might want to create a technical working group to plan for this likely scenario.

Staff asked the question should the program do “total" compensation or “ fixed” compensation. Lyle Rawlings explained that Massachusetts has fixed compensation and doesn’t have to do different EDC base rates so it’s much simpler & there is no difference among the EDCs. However, I concur with Scott Weiner (and Cadmus), that at least initially - for approximately 2 years, the BPU should use fixed incentives to set the stage - using locational & time values. Then, after gathering sufficient data, the BPU could move to a total compensation mechanism to allow for a wholesale approach and, hopefully, lower costs to ratepayers.

I concur that there needs to be substantial coordination with related programs - not just at the BPU, e.g. Comfort Partners, but also with DEP and DCA, e.g. lead paint and asbestos remediation.

Staff asked at the Stakeholder meeting "what should be the cutoff between small & large PV systems?” 10 MW seems to be the generally accepted break point.

A major issue here is whether to use levered or unlevered IRR. Cadmus used levered. However, the BPU clearly should use unlevered which is the solar industry standard and would eliminate the endless various assumptions on levered return to another—e.g. how much debt at what cost.

Cadmus believes that there will be an increase in residential Direct Ownership (DO) and a decrease in residential Third Party Ownership(TPO). I do not understand why they think that. I believe that TPOs will continue to grow because most residential customers do not want to be responsible for all the necessities of ownership, e.g. maintenance; they want to lease.

The Cadmus Successor Tranche Chart is based upon their presentation's assumptions. I suggest, depending on the Election’s outcome, that Cadmus might modify them if there is a change in administration. Other scenarios would likely change as well, e.g. FERC’ recent PJM

Minimum Offer Price Rule (MOPR) ruling about grid constraints. In addition. Cadmus' “step-down" in the Federal Investment Tax Credit is based upon the current law's step-down but there is a possibility of its continuation under a new administration.

The BPU needs to recognize the value of DER to the grid including the social and environmental value.

Cadmus stated that grid-connected solar (wholesale bulk transmission grid) needs a higher incentive due to higher risks but they should factor in the likely higher environmental and social risks of large grid-connected projects.

Due to societal benefits (health & environment), public entities, e.g. schools, municipalities, counties, should be encouraged to install PV and energy storage. Thus ,they should receive some sort of savings incentive - in other words - a higher incentive

The BPU should hold off dealing with out-of-state solar until after the more critical in-state solar is settled.

The cost caps should be applied with recognition of the benefits provided and in so doing better calibrated with the Energy Master Plan goals.

The BPU should seriously consider setting application standards that would weed out proposed projects that are not “serious” so that the incentive is not unnecessarily held and could be used by a viable project. For instance, the BPU could require a higher deposit.

As is appropriate, the BPU almost always makes regulatory changes prospectively. In the case of solar PV’s Successor Program, the BPU should ensure that existing residential and small commercial PV leasing customers understand that they are not in any way impacted by the Successor Program. For the legacy and TREC owners themselves, I suggest that the BPU consider allowing them, for each project, to opt out of legacy and TREC programs and into the Successor Program if they so chose.

STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITES

In the Matter of a Solar Successor Incentive Program Pursuant to P.L. 2018, C.17, Docket Nos. QO19010068 and QO20020184 –

Comments of Lightstar Renewables, LLC Regarding the New Jersey Board of Public Utilities Siting of Solar Facilities on Agricultural Property in the Successor Program (September 8, 2020)

Lightstar Renewables LLC (Lightstar) respectfully submits these Comments to the New Jersey Board of Public Utilities (Board) regarding the Board's development of the Successor Program.

Lightstar is an experienced solar developer that is developing solar projects in the Northeastern United States. In New Jersey, Lightstar is interested in the development of grid-supply projects to be installed on marginalized/under-performing agricultural property. Lightstar recommends that the Successor Program confer incentives upon grid supply projects constructed on marginalized farmland and for "dual-use" solar projects.

Scope of Comments

]While the Board's Request for Comments identifies several specific questions, it also encourages stakeholders to address Successor Program policy recommendations beyond the focus of the specific questions in the Request. Lightstar's comments submitted herein focus on the policy issue of ensuring that the Successor Program include incentives for grid-supply projects to be constructed on marginalized agricultural property and/or under a farmland/solar dual-use scenario.

Draft Capstone Report and Dual-Use Solar

The "New Jersey Solar Transition Draft Capstone Report: Successor Program Review" (the Report) sets forth an ambitious overview of the possible structure of the Successor Program.

The Report, in several instances, discusses "dual-use solar agriculture" as an emerging technology[1], noting interest and discussion in previous stakeholder meetings and workshops for "solar installed on agricultural land and integrated with active crops to some extent."[2] In its introduction, the Report states that this, and other emerging technologies, should be investigated to "ensure that the Successor Program is sufficiently flexible to adapt to such potential opportunities for solar expansion"[3], and notes "solar co-located with agriculture production (dual-use) could provide various benefits and opportunities for growth, but may pose unique cost profiles and design variations."[4] The Report requests additional information on dual-use solar (and other technologies), and recommends close work between BPU and developers to investigate this category of project.[5]

[1] p.80, p. 36, p. 2

[2] p. 11

[3] p.2 "Investigate emerging technologies and new solar business models (e.g., energy storage, dual-use solar agriculture, floating solar, building-integrated photovoltaics, and project repowering), and ensure that the Successor Program is sufficiently flexible to adapt to such potential opportunities for solar expansion."

[4] p.32

[5] p. 80. "Emerging or future new (sub)segments: Technological advancements, development innovations, and regulatory and rulemaking adjustments may create opportunities for new project segments or subsegments. Stakeholders pointed to innovations and solutions such as dual-use solar-agriculture, floating solar, and building-integrated PV. Cadmus recommends gathering unique cost and design aspects as well as benefits and impacts of these projects to determine the optimal way (if any) to integrate them into the Successor Program."

p.86 "Maintain robust estimates of project economics. The BPU should work closely with developers to gather other data sources for compiling project costs that align with actual project economics and market trends. This could include a mix of recent project costs, price discovery in auctions for larger projects, stakeholder-submitted estimates, and/or stakeholder cost surveys. In particular, the BPU should seek market input on the following: Reasonable, incremental costs for different structures and technologies (such as Community Solar, carport systems, landfill/brownfield, dual-use solar on agricultural land, floating solar, and building-integrated PV)."

The Report, though, is ultimately silent on whether dual-use solar projects, including farmland "Subsection r" projects, should be included in the Successor Program.

Lightstar takes this opportunity to strongly recommend the inclusion of, and incentives for, dual-use solar projects under the Successor Program, and to provide additional recommendations and information regarding dual-use solar generally, project qualification, classification of projects and associated costs, and examples from other jurisdictions.

Solar and Marginal Farmland – An Overview

Lightstar recommends that under the Successor Program, the Board enable grid supply projects dual-use based to be eligible for the Successor Program incentives. A "dual-use" project would require the subject property to be used for both agricultural and renewable energy production. Consistent with recommendations in the 2019 New Jersey Energy Master Plan (EMP), "dual-use" projects should be encouraged to be sited on a property where the non-preserved farmland area is considered marginal, and in which a substantial portion of the property's arable area remains available for agriculture use.

An ideal site for a dual-use project is a farm property that has been marginalized (due to property location, property characteristics, etc.). Marginal farmland should be considered as existing farmland that is not likely to remain in agricultural use because of the area where it is located or because the property's characteristics cause the agricultural use of the property to be underperforming and uneconomic. These farmland properties are likely to be lost to commercial or residential development in the coming decades.

In order to determine whether a farmland property is "marginal" and thus, a well-suited dual-use candidate for participation in the Successor Program, the following should be evaluated:

- the location of the property and the type of the properties in the area;

- the likelihood that the property is a target for development;
- the physical characteristics of the property and how they affect farming the property;
- the current agricultural use of the property, and
- the soil conditions of the property.

Indeed, the EMP supports development of solar resources on marginalized farmland. Specifically, EMP "Goal 2.1.8, Coordinate permitting and siting processes for renewable energy development" encourages the siting of solar facilities on marginalized sites, defining 'marginalized' as areas of "constrained social and economic value," and further identifying marginalized farmland by "poor soil conditions" or underutilization. The goal goes on to state "there are areas of non-preserved farmland that may have poor soil conditions, or non-pristine open spaces that are underutilized, both of which could potentially serve as host sites for solar projects while not compromising the state's commitment to preserve open space"[6]

Thus, the EMP itself confronts the somewhat false dichotomy of the farm vs. solar debate. While there are tradeoffs, and while solar sites should not displace prime farmland and pristine open space, solar can be developed on marginalized farmland while conforming to, and

[6] Goal 2.1.8: Coordinate permitting and siting processes for renewable energy development:

> In order to enhance smart siting of solar, the state should better define areas that are considered marginalized, such that they have constrained economic or social value. **For example, there are areas of non-preserved farmland that may have poor soil conditions, or non-pristine open spaces that are underutilized, both of which could potentially serve as host sites for solar projects while not compromising the state's commitment to preserve open space**. Dual-use opportunities may exist for siting solar on areas of open space or non-preserved farmland, but they must be examined carefully for environmental impacts. NJDEP and NJBPU will coordinate landuse policy for solar siting with the New Jersey Department of Agriculture to identify sites that could be used to expand New Jersey's commitment to renewable energy while still protecting the state's farmland and open spaces.
>
> These policy initiatives, as well as other locational analysis, should be evaluated for potential inclusion as part of an upgraded transparent and predictable interconnection process. Proper incentives consistent with EMP goals will maximize ratepayer value and ensure appropriate compensation

2019 NEW JERSEY ENERGY MASTER PLAN, *Pathway to 2050,* pages 112-113 (Emphasis supplied)

potentially supporting, New Jersey's long-term goal of open space preservation. A BPU decision supporting preferential siting of dual-use solar as part of the Successor Program supports the implementation of the goals of the EMP.

(Appended is a list of publicly available resources that discuss some of the characteristics used in the determination of the quality of agricultural land, and whether it should be considered "prime" or "important," or marginal.)

Dual Use Solar – A Unique Opportunity

The rationale behind policy which supports dual-use solar is simple: (1.) a landowner will switch from a dis-economic land use to an economic land use given the opportunity, (2.) over the next decade many marginal farmland owners in New Jersey will be approached to develop structures on their property, and (3.) these landowners wish to preserve their non-preserved farmland, but absent increased economics or additional revenue, they will be forced to sell or change properties to a higher economic value use. The economic benefit from the dual-use property (namely the rent paid to landowners) will act as an economic bulwark, and enable the preservation of non-preserved farmland that would otherwise be lost to development. The revenue that a property owner can derive from the generation of solar electricity can make the difference between needing to sell an underperforming non-preserved farmland property for development and maintaining a portion of the property for farming or as open space.

In view of this, under the Successor Program the Board should establish (1.) regulations (or a policy set forth in a Board Order) to allow Successor Program incentive qualification of dual-use solar projects, and (2.) incentives to encourage dual-use projects.

Qualification for Successor Program

In developing the Successor Program, it is not necessary for the Board to be constrained by the limitations in the Legacy SREC program regarding the issuance of SRECs to projects that have been found to be connected to the "distribution network." For example, the provisions of Subsection r of the Solar Act (N.J.S.A. 48:3-87r) are applicable to the award of SRECs, not the incentives that are to be developed under the Successor Program. Therefore, it is not necessary for the Board to subject dual-use Successor Program projects to be subject to the requirements of Subsection r which is intended to address eligibility for incentives under the Legacy SREC program.

However, if the Board determines that being "connected to the distribution system" is prerequisite for Successor Program eligibility, the Board can continue to apply the Subsection r type process, provided the Board's policies/regulations are modified, as required, to eliminate any restrictions against the use of farmland property for projects that meet dual-use requirements projects and are revised to reflect the closure of the Legacy SREC program.

In an effort to achieve the State's dual goals of preserving farmland space and promoting the development of renewable energy sources, Lightstar encourages the Board to include in the Successor Program farmland properties that satisfy the definition of "dual-use" projects. In order to qualify as a dual-use project, it will be necessary for the project applicant to demonstrate that the farmland property is a "marginal", underperforming agricultural property that would likely be lost to development if a solar project was not available to support the continued use of the property for agricultural purposes.

Further, in addition to demonstrating that a property is "marginal" in order to qualify as a dual-use project it would be necessary to show that (i) for a Farmland Sharing (as discussed

below) that a material portion of the property's arable area remains available for agriculture use, (ii) for a Pollination Habitat (as discussed below) project that the habitat is robust and has a maintenance and performance monitoring plan, or (iii) for a fully integrated project (as discussed below) that the property under the elevated panels will be continually used for agricultural purposes.

Incentive Design and Project Classification and Costs

In designing the dual-use incentive, the Board should recognize there is a spectrum of types of dual-use projects, and establish a range of different incentive values for such different dual-use projects. The incentive would ideally be administratively, as opposed to competitively set, to allow more certainty in project development, economic forecasting and EPC costing.

The incentive value should recognize that (1.) the costs for dual use projects are greater than traditional ground-mount grid supply projects, and (2.) that the extent of the increased costs for such project is related to the extent of the facility's physical integration of agricultural and solar operations. For example, a "dual-use" project that involves the continued agricultural use of a portion of the farmland while dedicating a separate portion of the farmland to the installation of ground mount solar panels is a less expensive form of dual-use than a project that would involve the installation of elevated panels that would permit continued agricultural use underneath the panels.

We recommend that three (3) classifications of permitted dual-use projects be included in the Successor Program:

1. Farmland Sharing: Projects that require a portion of the property's farmland to continue to be available for agricultural purposes while a portion of the property is dedicated to a grid supply ground-mount solar project.
2. Pollination Habitat: Projects that require the creation of a *robust* pollination habitat integrated into the property. An ongoing habitat maintenance and performance monitoring program would be required for each project.
3. Fully Integrated (*Agrivoltaics*): Projects that require the simultaneous use of the same property for an integrated agricultural and solar use. Panels would be required to be elevated so that the land below the panels can be used for agricultural purposes.

These project types should be awarded different levels of incentive under the Successor Program in recognition that costs vary based on project type. The least costly is likely to be Farmland Sharing, while the costliest dual-use project is the Fully Integrated Agrivoltaics model.

For a Farmland Sharing project additional costs are de-minimis, and would largely be comprised of limited cost increases to engineering and design, and additional costs related to soil and other types of studies.

For a project involving the creation of a pollinator habitat, the increased costs are attributable to (i) developing a robust pollination habitat, (ii) maintaining the habitat, and (iii) ongoing performance monitoring. We estimate that these activities will increase a solar project's installation costs by about $0.01/W-dc to $0.025/W-dc (~$10,000 - $25,000 per MW-dc, depending on layout and site conditions), and that, for a sample 3 MW project, increases to operating expenses would be low , an approximately 1-2% increase above normal O&M, or roughly $500 per MW-dc per annum.

For a Fully Integrated project that involves crop growth or grazing under solar panels, it will generally be necessary for the panels to be elevated several feet above the ground. The increased costs associated with the purchase and installation of elevated structures, as well as their operation and maintenance, is significant. The cost to obtain project funding (*i.e*. cost of capital) is likely to be higher for a Fully Integrated dual-use project due to the limited experience that equity investors have with dual-use projects. Also, additional project costs are likely to include increased irrigation equipment costs, equipment needed to facilitate tilling and harvesting under the panels, and additional labor for crop maintenance and harvesting. The actual additional costs for any particular project will vary based upon the circumstances of the project.

Lightstar estimates that the increased cost (capital expenses and increased operational expenses related to maintenance and monitoring and) for a Fully Integrated dual-use project can be as much as 50% more than a traditional ground-mount project; costs can vary considerably across projects due to site conditions and design of installation.[7] As a result, the incentive for Fully Integrated dual-use projects should be higher than the incentive value for Farmland Sharing Projects.

Finally, while we do not recommend that the Board establish a maximum size for dual-use projects, we recommend that project incentives should be tailored to recognize that economies of scale that can be realized in larger projects. For example, for projects above 5 MWs, the incentive should decline based upon the size of the project, *e.g.* projects between 5 MWs and 10 MWs would receive an incentive at a designated percentage below the incentive for projects between 0-5 MWs.

[7] As a rough example, the equivalent EPC cost of a "non-agrivoltaic" project in the 3MW-dc size can range from $1.10-$1.25/W-dc – An Agrivoltaic project can have the equivalent cost, taking into account increases in OPEX and financing costs, of $1.50 - $1.90/W-dc, depending on numerous factors.

Fully Integrated Projects under SMART[8]

The Fully Integrated project approach could contain conditions similar to the Massachusetts SMART program, with the exception of the 2 MW maximum size requirements. In Massachusetts, the Department of Energy Resources (DOER) has established a solar incentive program that enables solar facilities to qualify as an "Agricultural Solar Tariff Generation Unit" ("ASTGU") under the Solar Massachusetts Renewable Target (SMART) Program. In order to be an eligible ASTGU, the solar facility must, among other things:

- not interfere with the continued use of the land beneath the canopy for agricultural purposes;
- be designed to optimize a balance between the generation of electricity and the agricultural productive capacity of the soils beneath;
- be a raised structure with a minimum height of 8 feet above ground allowing for continuous growth of crops underneath the solar photovoltaic modules;
- demonstrate that the maximum sunlight reduction from the panel shading on land directly beneath, shall not be more than 50% of baseline field conditions, and
- AC rated capacity not greater than 2 MWs.

Projects eligible for participation in the SMART Program receive a fixed "Base Compensation" amount per kWh subject to "rate adders" or "subtractors" based upon the characteristics of the project. The Base Compensation is set either based upon a competitive bidding process or by the SMART Program. Solar projects are eligible to qualify as an ASTGU, which is defined under 225 *CMR* 20.02 as "a Solar Tariff Generation Unit located on Land in Agricultural Use or Prime Agricultural Farmland that allows the continued use of the land for agriculture." Projects qualifying as an ASTGU receive a compensation adder of $0.06 per kWh.

[8] See also, Cadmus report, p. 17 "Conversely, SMART offers adders that incentivize the development of projects on landfills, as parking lot canopies and in dual-use agriculture."

(See Massachusetts Department of Energy Resources' "Agricultural Solar Tariff Generation Unit" ("ASTGU") program under SMART Program, 225 *CMR* 20.00).[9]

As mentioned above, projects qualifying as an ASTGU receive a compensation adder of $0.06 per kWh. This equates to almost $1.5mm of performance-based incentives per MW-dc or $700,000-$900,000 on a present value basis, or $0.70 - $0.90/W-dc, versus an assumed EPC cost of $1.2-$1.4/W-dc in Massachusetts. While this is a fulsome incentive, it should be noted:

1. Anecdotal evidence, as well as the lack of (publicly reported) development of privately owned ASTGUs under the MA SMART program, suggests this incentive amount has not been sufficient to spur growth of Agrivoltaics in Massachusetts under SMART, and
2. Direct comparison of specialized incentives across jurisdictions with differing base compensations incentives, incentive payment timings, program structures and regulations, and markets and costs for labor can be difficult.

Conclusion of Comments

In order to advance the State's goals of preserving farmland and promoting renewable generation development, Lightstar urges the Board to incorporate dual-use projects into the Successor Program.

In order for a dual-use project to be approved, the applicant should be required to demonstrate that (1.) agricultural or pollinator activity will be preserved on the site, (2.) the farmland is marginalized, and but for the dual-use project the property would likely be lost to development. In designing incentives for dual-use solar projects, the increased and differing

[9] *Note on Pollinator Habitat adder*: Under the SMART program, solar projects which are not ASTGU, but which act as pollinators, receive between $0.0025-$0.0015 per kWh as an adder – this lower adder, compared to ASTGUs, is reflective of the much lower construction and maintenance costs, discussed earlier. Under SMART, Pollinators are certified by the state university system, UMASS. 225 CMR 20.00

costs of the various types of dual-use facilities should be taken into account in setting incentive levels.

Including dual-use projects in the Successor Program is a unique opportunity to advance the State's renewable energy policy goals without compromising, and actually supporting, the goal of preserving farmland properties.

Sources related to the categorization of farmland quality:

7 CFR § 657.5 - Identification of Important Farmlands. *Legal Information Institute*, Legal Information Institute, www.law.cornell.edu/cfr/text/7/657.5.

NRCS Prime and Other Important Farmlands, www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1338623.html.

Identification of Important Farmland. August 4, 2020. https://prod.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_010970.pdf

Natural Resources Conservation Service. *New Jersey Important Farmlands Inventory | NRCS New Jersey*, www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/soils/?cid=nrcs141p2_018875.

Natural Resources Conservation Service. *Prime Farmland*, www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcs143_014052.

Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units. April 26, 2018. https://www.mass.gov/doc/agricultural-solar-tariff-generation-units-guideline-final/download

Land Types for Solar Development. August 4, 2020. https://www.mass.gov/files/documents/2016/10/sm/solar-land-use-guidance-and-information.pdf

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September, 2020

Ms. Aida Camacho-Welch
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:
communitysolar@bpu.nj.gov

Re: Docket No. QO20020184
New Jersey Solar Transition
Successor Program Capstone Report Staff Request for Comments

Dear Ms. Camacho-Welch and Community Solar team:

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

In these comments, MSSIA will present its preliminary analysis positions, suggestions, and comments in regard to the Successor Program. The Successor Program, as we understand it, will define the state's efforts to achieve the requirements of the Clean Energy Act and the goals of the Energy Master Plan for many years to come, culminating in the achievement of 50% renewable energy in 2030. We believe it is vital, then, that both the underlying structure of the incentive program and its details and incentive levels be designed as well as possible. In other words, although it is important to conclude the design process quickly, we've got to get it right.

MSSIA is committed to the large amounts of analysis, data gathering, and consensus building that are necessary to ensure that the Successor Program accelerates solar development to the 900 MW per year rate envisioned in the Integrated Energy Plan, while keeping costs as low as possible and accomplishing other societal goals. Accordingly, at this point MSSIA has not yet established positions on some of the questions posed by staff, and indicates below when that is the case.

SUMMARY OF KEY POINTS

- If the pace of solar development is to accelerate as described in the IEP, the incentives must provide a driver that is stronger than that needed to maintain development at the current rate. An example of the kind of parameter we believe should be considered in order to facilitate that

acceleration is to base incentives on a higher percentile in the distribution of project costs, so that a larger number of potential projects can be viable.

- MSSIA believes that the Fixed Incentive Program that CADMUS uses for its base-case analysis is the best approach.

- The approach taken by BPU and CADMUS to make the modeling transparent, using a U.S. government model with an accessible list of inputs, constitutes an important step forward in facilitating a full and thorough review of the process, and enabling effective industry input.

- Several inputs for the SAM model as presented in the CADMUS Capstone report need review and modification. They at odds with solar industry experience with solar projects in New Jersey. They are also at odds with data being gathered by New Jersey solar industry participants, and with the results of U.S. government studies, in particular the most recent version of Lawrence Berkeley Laboratories' Tracking the Sun.

  Cumulatively, these variances in the inputs result in modeled incentive levels that would not produce viable projects in most situations. Chief among the inputs we believe require review and modification are the total cost of acquisition of projects, the performance of systems, and the discount on electric power required to attract net metering hosts.

- Lawrence Berkeley National Laboratory's most recent Tracking the Sun report includes median installed prices for New Jersey solar systems for 2018 and the first half of 2019, along with 20th percentile and 80th percentile figures. The New Jersey *median* installed price was $3.60 per watt for residential, $2.90 per watt for small non-residential, and $2.30. The 80th percentile cost was $4.10 for residential, $3.40 for small commercial, and $2.70 for large commercial.

  It is important, also, to consider the total acquisition price of systems, not just the installed price.

- MSSIA has conducted extensive, but so far preliminary, modeling of a large number of cases using the SAM model. MSSIA has modeled with what it believes are realistic inputs.

  MSSIA modeled cases based on several project size categories. MSSIA also modeled different project types (residential; nonresidential roof and ground-mount, including net-metered as well as grid supply; community solar located on roofs and landfills/brownfields, and special projects including grid supply landfills/brownfields, floating photovoltaics, and agricultural photovoltaics. We also modeled the foregoing combinations by utility territory.

  MSSIA has preliminary results of SAM modeling and comparisons with solar industry models, but is not ready to publish before further checking and verification can be done. One thing that is clear is that the differences in the results are very distinct for different utility territories.

- MSSIA urges that the target of CADMUS' modeling be modified to reflect the way most financers, owners, and developers assess and compare projects, by using unlevered IRR instead of levered IRR as the target for modeling. Unlevered IRR is a more basic measure of project viability at a given project acquisition price, or at a given PPA offer in competitive bidding. It is also a way different projects can be compared on an apples-to-apples basis, and different models can be expected to return similar results. Unlevered IRR levels of 7% to 8.5%, according to project size and type, are used in MSSIA's analysis.

- In New Jersey's original rebate program, in the SREC program, and in the TREC program, incentive levels were not differentiated by direct ownership vs. third-party ownership. MSSIA believes that this approach is still appropriate, with the possible exception of residential solar. Over time, it does not seem to have noticeably skewed development in one direction or the other.

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

Topic 1: Recommended Incentive Structure Design

Based on stakeholder engagement to date, Cadmus presents three incentive "types" in the draft Capstone Report that could be used to inform the design of the Successor Program (see section 3.3, p. 16 – 25):

- Total Compensation: similar to a contract-for-differences model, a total compensation incentive structure calculates all the revenue streams generated by a representative project to arrive at a complementary performance-based incentive amount that may change over time as revenues change to achieve an administratively determined investment target. The incentive value is added onto these revenues to reach a total fixed compensation value.

- Fixed Incentive: a fixed incentive structure is one in which the value of the performance-based incentive is fixed over time, similar to the current Transition Incentive Program.

- Market-Based RECs with Floor: a market-based REC is an incentive that varies over time above a pre-defined floor price, based on the supply of RECs produced by eligible solar projects, and the demand set by the RPS.

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively-set incentives for smaller projects.

    a. Do you agree with this recommendation? Why or why not?

MSSIA agrees with this recommendation. The Total Compensation Model as implemented in the Massachusetts SMART Program has a number of desirable features, and MSSIA has recommended that approach in the past, with some modifications. However, the fixed incentive approach is simpler and has already been implemented in New Jersey in the form of the TREC program. A new fixed incentive program would therefore be faster to implement in the Successor Program.

    b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

        i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

MSSIA views project size as the primary determinant of whether a project should competitively bid or receive and administratively-set incentive. We believe that 10 MW should be the size limit for administratively-set incentives.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

MSSIA is still considering whether net metering projects over 10 MW should receive administratively-set incentives or be competitively procured. One factor being considered is whether net metered projects over 10 MW would have an unfair competitive advantage over grid supply projects in competitive solicitations. In any case, we expect that net metered projects over 10 MW would be very rare.

If such projects are included with grid supply projects in a competitive solicitation, then it may be that the total compensation (energy revenue plus incentive) should serve as the bid price. It may be, also, that the overall value that the power generated by bidder should be evaluated in the solicitation.

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

See MSSIA's answer to b.ii. above.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

We do not recommend a different option.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

MSSIA believes that landfills and brownfields, and other projects of special value such as floating photovoltaics and agricultural photovoltaics should be fixed incentive projects, except for agricultural projects over 10 MW.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

We do not disagree with the bifurcated approach.

2) If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

MSSIA believes that the incentive values should be re-evaluated yearly, including re-modeling the values with stakeholder input.

In addition, we believe that any substantial and material change in circumstances should trigger a review and re-evaluation if the BPU deems it necessary. One example of such a material change in circumstances would be a national change in administration due to the outcome of November's presidential election. It is widely expected in the solar industry that a change in the administration would result in a change in the federal investment tax credit, including potentially holding or even increasing the current tax credit, and potentially adding a reimbursable or direct pay alternative. Such changes would substantially alter the required Successor Program incentive.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

MSSIA believes that NJBPU should differentiate the incentive value based on the following categories, designed to represent categories with significantly different economic characteristics:

1. **Project Size**
   a. <25 KW (Residential)
   b. 0-500 KW (small non-resi.)
   c. 500-1,000 KW (medium non-resi)

d. 1,000-3,000 KW (large non-resi.)
e. 3,000-10,000 KW (very large non-resi.)

2. Project types:

a. Residential
b. Non-Residential
   i. Roof
   ii. Ground
c. Community Solar
   i. Roof
   ii. Landfill/Brownfield
d. Special Types/Under-utilized Locations
   i. Landfill/Brownfield (subsection t)
   ii. Floating Photovoltaics
   iii. Agricultural Photovoltaics

3. Energy Revenue (by Utility Territory and Grid)

a. PSE&G
b. JCP&L
c. ACE
d. RECO
e. PJM / wholesale grid

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

As discussed in 2.a., administratively-set incentives can be, and usually are, modified at regular intervals by the administrating agency to drive down costs steadily, and can react pro-actively to changed circumstances.

In addition, NJBPU could establish a declining schedule of incentive reduction goals and expectations based on forecast changes in costs and other factors.

Studies in the U.S. and worldwide have found that administratively set incentives can be successful in producing strong growth along with cost-effective incentive levels, and reducing those levels over time. In fact, some studies concluded that administratively-set incentives were more effective than market-based mechanisms in that regard.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

MSSIA believes that a 15-year qualification life is appropriate. Longer terms, such as a 20-year qualification life, are worthy of consideration as well. Limited modeling of a 20-year life, along with stakeholder input regarding the effect it might have on cost of capital (IRR expectations), and with discounted cash flow analysis comparing the two options.

MSSIA does not support the 10 year incentive term for residential direct ownership, especially not with the same incentive level as residential third-party ownership. As presented in the Capstone Report, it constitutes a severe, further cut in an already severely stressed market segment.

The market for residential direct ownership is the primary market segment that supports local New Jersey companies, who are the strongest job creators. Direct ownership also brings an important segment of the New Jersey population into the position of having a direct stake in the program – the sense that the NJ Clean Energy Program is a part of their lives.

The residential direct ownership segment has been growing in recent years, and NJBPU should be encouraging that growth for its contribution to the EMP and IEP goals. MSSIA's members who are local residential installers report that they are struggling to survive right now, even though in the rest of the country the residential direct ownership market is booming, according to recent surveys by the nationwide Amicus Solar Cooperative. A further substantial cut targeting that segment, as presented in the Capstone report, would be unbearable for our industry's local small business community.

3) If NJBPU were to implement incentives based on a competitive solicitation:

    a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

MSSIA believes that for projects over 10 MW, an annual or semi-annual solicitation would be appropriate. We believe that selection should be based upon the following factors:

1. Price
2. Value of the power to the grid
3. Special considerations for the fulfillment of policy goals
4. Ability to execute and degree of project maturity

The topic of the value of a project's solar power to the grid is too complex to cover in detail here, but an example of a project that might have greater value could be one located in an area of grid congestion, particularly if that congestion is well time-matched to the project's output. Another example would be a project featuring solar plus storage.

Regarding storage, MSSIA believes that 15% of each solicitation should be reserved for solar+storage projects, in order to advance compliance with the 2,000 MW of storage by 2030 requirement in the Clean Energy Act.

Examples of special considerations for the fulfillment of policy goals could include projects sited in underutilized locations such as solar on landfills & brownfields or floating PV; or projects accomplishing special non-renewable energy goals, such as agricultural photovoltaic co-developed projects.

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

MSSIA believes that a bundled incentive structure is a better route. A bundled structure will attract lower cost capital sources, since the revenue risk is lower. Most jurisdictions of which we are aware have taken this approach, with success.

While it is true that the bundled approach creates down-side risk that ratepayers could pay higher incentives if wholesale power rates decline (or escalate less than expected), there is equally up-side opportunity that ratepayers will pay lower incentives if wholesale power rates rise (or escalate more than expected). Through careful design of the solicitations, it should be possible to create confidence that the odds favor the ratepayer, while reaping the benefits of lower cost of capital.

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single-clearing price system.

d.

MSSIA recommends setting the incentive (or bundled) value on a pay-as-bid basis. We see no adequate reason the state should pay a successful bidder more than the amount they bid. We know of no evidence that in a solar solicitation of this type, a clearing price solicitation has produced lower overall costs.

e. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

NJBPU should implement a maximum bid value, after stakeholder input and modeling.

f. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

MSSIA recommends annual or semi-annual solicitations, but is interested in how an "always on" program could work. MSSIA has ideas to contribute regarding ways to design a hybrid program, should there be a stakeholder to consider these matters.

g. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

MSSIA believes that out-of-state projects should not be eligible for state incentives other than Class 1 RECs. If NJBPU decides to make them eligible, there should be a limit to the percentage of any solicitation that out-of-state projects can be awarded, since otherwise out-of-state projects will almost certainly eclipse all in-state projects.

h. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

MSSIA believes that for utility-scale projects, the term of the award should be 20 years, in line with the expectations of the typical utility-scale developers and financers, and in line with what we believe has been the norm in other states.

i. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

Project-specific contracts with EDCs would be preferable from the point of view of developers and project financers. MSSIA is, however, sensitive to the utilities' concerns about imputed debt arising from such contracts. It may be worthwhile to consider using the OREC program as a model. It appears as if the OREC program was able to attract low-cost capital for very large projects, and satisfy a diverse set of stakeholders. The substantial work that was done on that program could provide a head start for a utility-scale solar program.

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

Maturity requirements will be vital to the success of a utility-scale solicitation program. Some attention needs to be paid to balancing the need for high project maturity against the need for developers to keep the magnitude of expenditures in advance of approval to a reasonable level. MSSIA believes that an escrow payment should be part of the process, as was done for the subsection q program, etc.

Project maturity requirements should include site control, site environmental investigation, and completion of PJM interconnect studies.

Other maturity factors beyond the minimum could be included in the scoring for bidders in the solicitations, with factors such as a signed ISA or town planning board approval conferring a scoring advantage.

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.

a. Generally, how can this flexibility be incorporated into the design of the Successor Program?

See MSSIA's answer to question 2.a.

b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

As stated in our answer to question 2.a., changes to the FITC levels as well as the creation of refundable or direct-pay alternatives, or carbon-pricing policies, should trigger a special review in advance of any upcoming regularly-scheduled reviews, if the BPU believes that such changes substantially and materially alter the economics of solar projects.

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

As with question 5.b., any substantial and material change should trigger a special review.

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

MSSIA believes that out-of-state utility-scale, as well as non-utility-scale projects, should not be eligible for state incentives.

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

For twenty years, New Jersey's solar energy incentive programs have been limited to projects connected to New Jersey's distribution system, effectively limiting them to in-state projects. To our knowledge, there have been no issues of note or challenges to any of those programs, including the most recent TREC program.

According to MSSIA's Counsel, who researched the matter for MSSIA, in other jurisdictions where similar state incentives for a number of different purposes have been limited to in-state participants, and those policies have been challenged, the courts have consistently upheld the states' position. This includes the U.S. Supreme Court.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

MSSIA is looking into this issue.

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

MSSIA is looking into this issue.

Topic 2: Modeling

The modeling conducted by Cadmus and described in the draft Capstone Report was largely informed by the assumptions used in the Transition Incentive program modeling, updated cost data from projects in the SRP, and subsequent stakeholder engagement such as the March 2020 Successor Program cost survey. Staff is interested in stakeholder feedback on Cadmus' assumptions and modeling choices. Staff has identified a number of specific questions below, but encourages stakeholders to share their assessment of the model and modeling assumptions beyond the focus of these questions.

7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

The breakdown of cases in the Capstone Report should be expanded in certain ways as stated previously, including the addition of one more size option for non-residential, including roof and ground-mount for each size option, and including a grid-supply case for each non-resi size category (except community solar, of course). Cases should also include landfills & borwnfields (subsection t), as well as special cases for floating PV and agricultural PV.

Our analysis shows clearly that cases need to be modeled by utility territory, since

our modeling revealed large difference in incentives for different utilities – one of the largest factors, if not *the* largest, in determining the required incentive rates.

On the other hand, MSSIA does not believe that it is necessary to separately model direct ownership vs. third party ownership, as discussed below.

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

    a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

As shown in MSSIA's answer to question 2.b., MSSIA recommends further differentiation by size, and stretching the non-resi size categories to reflect the continued growth in system sizes (a good thing for meeting the EMP 2030 goals).

MSSIA expects that residential system sizes will decrease in response to the new fire code, but it is too early to tell whether the change will necessitate an alteration to the modeling.

    b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

MSSIA believes that the modeled cost assumptions are generally low, by a substantial margin. One factor seems to be that the modeled costs are installed cost, not total acquisition cost. It appears that soft costs were not sufficiently included in the modeling. These are real costs that effect the viability of projects, and therefore need to be included in the modeling in order to find the right incentive levels. Attention should be paid to the Lawrence Berkeley Laboratory Tracking the Sun report, as cited previously. A new edition of the Tracking the Sun report is due to be published in October.

    c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

Of greatest concern to MSSIA is CADMUS' use of a levered IRR target for modeling. As stated previously, the standard target when assessing projects, refining prices for competitive bids, comparing projects with other projects, and comparing different acquisition offers, unlevered IRR is the parameter normally used.

Furthermore, industry modeling of the CADMUS target approach has indicated that the chosen unlevered IRR produces non-financeable projects.

    d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

Even for the solar industry when facing real projects, it is very difficult to quantify

demand charge reduction. As a result, it usually isn't done, and isn't relied upon in financing or selling projects. It is possible, though, in certain circumstances. MSSIA would welcome engaging CADMUS, BPU, and other stakeholders on this topic.

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

MSSIA finds CADMUS' energy production rates to be unrealistically high. Correspondingly, several performance modeling assumptions used in SAM were found to be missing, understated, or exaggerated. Moreover, actual performance over the past five years, as recorded by high-quality data acquisition systems monitored by the industry, and as published by PJM GATS, indicated that real world performance is even lower than solar industry models would suggest.

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

MSSIA believes that relatively few developers and project financer/owners will safe-harbor equipment for 2021, for the following reasons:
1. Many entities safe harboring for 2020 found that they "lost money on the bet"; the cost of buying at a high cost, then storing and double-shipping the modules was greater than the gain
2. Even if entities do safe harbor equipment, the cost of doing so would have to be taken into account in the modeling.
3. There is risk of getting stuck with equipment that ends up not being needed.
4. Many developers and financer/owner simply will not be financially able to afford to hold equipment for a long period of time.

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

CADMUS' resulting estimate of wholesale energy prices is significantly higher than current rates and forward-looking expectations, especially in view of the effects of the MOPR. A more realistic assumption would be a total of about 3.5 cents per KWH.

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

MSSIA is still studying CADMUS' modeling of the MW targets, especially assumptions and allocations for different market segments. MSSIA plans to comment during subsequent stakeholder proceedings.

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

MSSIA recommends that BPU not differentiate between direct ownership and third-party ownership projects. Such differentiation was not done in the TREC program, or before that in the SREC program, or, to our recollection, in the CORE rebate program before that. The 20-year history of those programs indicates that not differentiating between the two did not seem to unduly favor one or the other, with both types growing but not overwhelming the other. We take that as evidence that incentive levels in the past were about equally effective for both types.

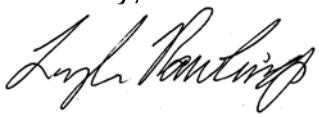
12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

The BPU's move to provide a transparent, publicly available, and accessible modeling platform and input assumptions was an important step forward, and one MSSIA appreciates greatly. MSSIA has put in a large amount of time and effort modeling incentives with SAM, comparing results for a variety of cases, and vetting results by comparing those results with the results using an industry model using the same assumptions and inputs, to the extent possible. Much work remains to be done. There are behaviors of the SAM model we do not yet understand, and some results are at odds with industry models. MSSIA looks forward to BPU holding technical workshops. We believe the workshops will play a vital role in refining the incentives, ensuring that they are sufficient but not super-sufficient for all market segments.

13) Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

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

Sincerely,



Lyle K. Rawlings, P.E.
President

Submitted Via Email

September 8, 2020

State of New Jersey
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Trenton, New Jersey 08625-0350

RE: Successor Program Capstone Report, Docket No. QO20020184

Dear Secretary Camacho-Welch:

Please find enclosed the joint comments of New Jersey Conservation Foundation and the Natural Resources Defense Council in the above referenced matter. We appreciate the opportunity to provide input as the state works towards finalizing New Jersey's solar successor program.

We also understand that a separate proceeding is planned to address remaining critical cost cap and legacy solar cost issues that are not directly addressed in the Successor Program design questions raised here. We look forward to the opportunity to comment on those issues as well, which will greatly impact achieving solar targets in the Successor Program as set forth in the Energy Master Plan.

Sincerely,

Eric Miller, Natural Resources Defense Council

Barbara Blumenthal, New Jersey Conservation Foundation

Topic 1: Recommended Incentive Structure Design

Based on stakeholder engagement to date, Cadmus presents three incentive "types" in the draft Capstone Report that could be used to inform the design of the Successor Program (see section 3.3, p. 16 – 25):

- Total Compensation: similar to a contract-for-differences model, a total compensation incentive structure calculates all the revenue streams generated by a representative project to arrive at a complementary performance-based incentive amount that may change over time as revenues change to achieve an administratively determined investment target. The incentive value is added onto these revenues to reach a total fixed compensation value.

- Fixed Incentive: a fixed incentive structure is one in which the value of the performance- based incentive is fixed over time, similar to the current Transition Incentive Program.

- Market-Based RECs with Floor: a market-based REC is an incentive that varies over time above a pre-defined floor price, based on the supply of RECs produced by eligible solar projects, and the demand set by the RPS

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively- set incentives for smaller projects.

    a. Do you agree with this recommendation? Why or why not?

Yes, with provisos listed below in (b) i . We think this approach is best suited to result in the lowest overall cost for the Successor program, while also providing adequate protection for open space, farmland, and natural environments. This approach is also consistent with specific successor program guidance of the Clean Energy Act ("CEA").

    b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

        i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

We recommend that the dividing line between competitive solicitation and administratively set incentives not be made based on project size, but on whether the project is located behind the meter or in front of it. Projects that are in front of the meter depend entirely on revenues from selling their energy and capacity bilaterally or into wholesale markets, and thus - to the extent market revenues are not sufficient to support their investment -- need some additional incentive-based revenue. By contrast, behind-the-meter resources, including community solar projects, receive revenues in the form of customer payments that are voluntarily agreed to by customers to avoid exposure to retail energy rates and demand charges. With net metering, the avoided retail purchases extend beyond those avoided by consuming the resource's solar electricity directly, and also include savings due to crediting the resource's net monthly kilowatt-hour exports against the customer's bill at the retail energy rate. The net amount of compensation available through customer payments for these benefits may exceed that available through wholesale

market sales, particularly because retail electricity rates are typically higher than wholesale market prices. Accordingly, compensating behind-the-meter and in front of the meter large-scale solar projects at the same level is likely to over-compensate behind-the-meter projects or under-compensate those that are able to charge customers for behind-the-meter benefits.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

Some net-metered projects may currently, or in the foreseeable future, be able to recover their costs adequately simply through the customer payments made for the behind-the-meter benefits (e.g., avoided energy and demand charges under the applicable retail tariffs), and therefore would not need additional incentives in a successor program. However, to the extent this is not possible, we recommend administratively-set incentives for behind-the-meter solar projects that are unable to achieve financial viability without them.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

We recommend that the competitive solicitation process for large-scale projects require project bids to identify their location and whether or not they will be located on landfills and brownfields. During the bid evaluation, it will then be possible to determine whether higher incentive prices are needed for certain locations (such as in-state versus out-of-state or in-state on landfills and brownfields). If so, then the successor program could award higher incentive levels by these categories, until it had subscribed an amount of solar capacity it considers adequate in each category, considering any statutory requirements or other policy guidance, including DEP's preferred categories for solar siting and the CEA's RPS cost-caps.[1] See the discussion below about cost-caps in response to question 10.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

2) If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

We suggest re-evaluating incentive values every three years, consistent with the timing of the

[1] *See* NJ DEP, *Solar Siting Analysis Update* (Dec. 2017), *available at*: https://www.state.nj.us/dep/aqes/SSAFINAL.pdf

Energy Master Plan ("EMP") cycle and the integrated energy plan analysis used to develop, modify and support the EMP. Updating the need for and the level of solar incentive values and capacity targets should be based on both the evolving EMP and an updated analysis of recent solar costs and the volume of responses to existing incentive levels. Excess demand for solar incentives in a category of solar projects would be an indicator that the existing incentive levels are higher than needed, while inadequate supply of a category of new solar projects would be an indicator that existing incentive levels are not high enough, or are too risky, to attract solar investment.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

Incentive values should vary across project type, recognizing that significant differences exist in the underlying costs of solar projects as well as in their sources and amounts of revenue.

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

The process for updating the need for and the level of incentives outlined in our answer to question 2(a) should support and facilitate achieving this goal.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

3) If NJBPU were to implement incentives based on a competitive solicitation:

a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

We recommend that the competitive solicitation for large, in front of the meter projects explicitly invite bids for, and restrict them to, a minimum level of fixed incentive payments over time which, if less than or equal to the level of incentive payments awarded to the project under the solicitation, the project would be contractually bound to develop and operate its project and transfer ownership of all environmental attributes, such as Class 1 RECs, future SRECs, and Clean Electricity Credits under a state or federal clean electricity standard, to an agent or entity designated by the NJBPU. Bidding projects would also have to post bidding and performance bonds sufficient to establish their bona-fides and to ensure their contractual performance in the event they are selected.

Under our recommendation, project selection would be based on bid price, with all bids ranked by incentive price bid and accepting those with incentives at or below the level that is compatible with the headroom that is dynamically available (i.e., available in each year going forward under the ongoing obligations of existing and new projects needed to meet the RPS) under the RPS cost caps.

We recommend emphatically against using points awarded for preferable sites, project sponsor credit ratings, and other variables as evaluation criteria. Instead, all of these requirements should be established clearly as "bright line" requirements in the RFP and pro-forma contract, and only projects that meet them should be eligible for being awarded an incentive. There should be no trade-offs established or allowed for sub-standard or risky projects that, for that reason, are able to offer a price that is too good to be true, or cheap enough to warrant the damage to ratepayers, the reputation and credibility of the state and the solar industry, or the environment that they could create.

We offer specific recommendations for bright-line siting requirements in additional comments, at the end of these comments.

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

There is a substantial history of large renewable energy projects getting financed on the basis of volatile REC revenues and wholesale market revenues. Further, wholesale energy and capacity market hedges are available in the broker-based market for such projects that find market revenues too volatile on a pure merchant basis. Thus, there already are market alternatives that should be preferable, less costly, and more consistent with the CEA's specific guidance regarding the goals of a successor SREC program to the NJBPU, than simply assigning all of these risks in a non-bypassable fashion to ratepayers. Under the competitive procurement process recommended above, individual projects will need to balance the desire to have a higher incentive payment serve as an additional hedge against market revenue risk, and their desire to bid low enough to win an incentive contract in the competitive procurement process. Generally, bids should be lower for those projects most capable of managing their wholesale market risks, and those are the types of projects that the NJBPU should be most interested in encouraging under the CEA guidance. Selecting such projects will minimize both the price and risk impacts on ratepayers, and allow the largest volume of new solar projects under the CEA's cost caps, while staying true to New Jersey's and the NJBPU's commitment to protect open spaces, farmland and natural environments.

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single-clearing price system.

For highly homogenous products and commodities, a single-price auction is generally more efficient than a pay-as-bid auction. However, in auctions for distinct items, it is generally more efficient to have separate prices for each item or combination of items (determined either through separate auctions or through "package bidding"), due to the substantial difference in both cost and customer value of the various offerings.

In competitive procurement of specific projects, however, multiple projects, each with its own unique cost and capabilities, are typically evaluated in order to find the combination of projects that create the most value. Because each project has different costs, and may provide more or less value, competitive procurement of projects is almost always carried out through a solicitation that ranks bids by price and procures the requisite number of projects that collectively offer the lowest cost, each being paid at their bid level.

Centralized REC markets and capacity markets have typically focused on the homogenous, commodity-like character of RECs and megawatts of UCAP, and thus have often used a single-price approach, though there are clear exceptions (e.g., the bilateral tolling agreements entered into through bundled energy and capacity procurement in some markets, California's RA product, etc.).

In the proposed incentive-only approach for large scale, in front of the meter solar projects, arguments could be made for either approach. However, we recommend a pay-as-bid approach, because of the fact that bids from different projects, such as in-state or out-of-state, eligible for subsection (t) consideration and potentially in areas with higher or lower real-estate and interconnection costs within New Jersey, should be expected to have different costs. With sufficient competitive pressure to keep bids low, we anticipate that a single price procurement auction would end up compensating lower cost bidders at levels above those that would obtain under a pay-as-bid pricing rule. Accordingly, we anticipate that a pay-as-bid approach to the lowest cost bids acceptable under the budget-based allocation approach will result in the lowest cost for New Jersey customers and ratepayers.

d. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

Neither should be needed, however, of the two alternatives, a bidding cap would be less harmful. A floor is sometimes thought to be useful in preventing a "winner's curse," which refers to a situation where the winning bidder bids too low by being overly optimistic about their costs and the return they actually need to finance their project. However, the winner's curse can typically be avoided with adequate bidding and completion bonding requirements to weed out unscrupulous or speculative bidders. A bidding floor that is low enough to make any difference in a well-designed competitive procurement process will simply prevent the most competitive, low cost, and efficient projects from winning, and force ratepayers to pay higher costs for less efficient developers. This result should be avoided.

A bidding cap may be deemed useful by some if there is inadequate participation in a bidding process, but the logic is flawed. If a bidding process only attracts bids above the level at which competitive project developers can and are developing projects, the solution is to cancel the procurement and design a more transparent, dependable and trustworthy process. A better solution is to avoid this problem with a well developed, professionally managed procurement process and adequate assurances of stability in the awarded incentive payments over a sufficient lifetime. Given the amount of active solar development in the state and region, it would be very unlikely for a well-designed competitive procurement process offering a long-term, bid-based incentive payment not to attract substantial competitive participation and aggressive bids. Further, by using the budget-based capacity targets recommended by NJCF in February 22, 2019 comments on the Transition Staff Straw Proposal (Question 7), the procurement process would have a default "off ramp" in the event that bids are, for whatever reason, simply too high.

e. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

f. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

The NJBPU should definitely take advantage of lower cost bids to ensure that it can achieve

the RPS targets within the statutory cost caps for Class I renewable resources, other than offshore wind, used to meet the RPS requirement. We continue to recommend the budget-based approach to filling the RPS requirement proposed by NJCF in its February 22, 2019 comments, which uses enough of the lowest available compliance opportunities first to ensure that filling the rest of the RPS requirement with higher cost alternatives does not result in exceeding the cost headroom under the cost caps in subsequent years. Lower cost tranches of procured solar should be treated in this same, "lowest-cost-first when needed" manner.

g. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

We recommend the BPU explore options that would avoid encumbering the EDC balance sheets with the long-term contractual obligations associated with the large-scale solar procurement process discussed above. EDCs are likely to face substantial credit requirements in future years associated with resources that cannot be financed through other means than assured collection through EDC rates, and it would be a good idea to conserve their natural monopoly cost structure and credit worthiness for such investments. We think it is possible that the large scale procurement costs could be allocated more directly to BGS suppliers, potentially in much the same way that OREC costs currently are, and suggest the BPU and parties explore and develop such alternatives instead of simply tagging the EDCs with the costs of competitive clean energy contracts.

In terms of jurisdictional considerations, we do not see substantial benefits to an EDC contract for environmental attributes, such as we recommend, since the sale of environmental attributes, with no exchange of energy or capacity for resale, would not be FERC jurisdictional in any event.

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

We recommend minimum bidder qualifications, and both bidding and performance bonding or escrow requirements to establish bidder bona-fides and create a strong disincentive to bid speculatively or to fail to devote adequate resources and experience to project development and completion. Part of any performance bonding or escrow requirement is for there to be realistic and reasonable, but firm, commercial operation deadlines that must be met for the escrow or bond to be returned.

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.

a. Generally, how can this flexibility be incorporated into the design of the

Successor Program?

We recommend the incentive levels and any forward looking capacity targets in the Successor Program be updated every three years, concurrent with the EMP and its associated integrated energy planning process, in light of new information on technology costs, availability, performance, and evolving understanding of the least-cost, best-fit approach to achieving the state's local and regional clean energy and decarbonization goals. Changes in cost of solar and related technologies will factor directly into the updating of incentive values and program details discussed in response to Question 2 (a) above.

b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

Periodic re-evaluation of the incentives levels will address the impact of known changes in Investment Tax Credits, or of enacted carbon price policies on expected revenue. Changes in carbon pricing policies would likely impact expected revenues for solar projects in the wholesale energy and capacity markets, and would therefore be reflected in their bid levels. Existing large scale projects with previously established incentives would receive the higher wholesale market prices as well, and thus would have no need for any increase in their incentives to somehow capture the benefits of a carbon price. In a competitive procurement process, incentive levels will be determined by bids, and thus do not need to be administratively adjusted for, or in response to, changes in carbon pricing. To the extent behind-the-meter projects offer higher customer value, e.g., due to helping customers avoid higher cost competitive energy sold by their third-party supplier or BGS provider, new projects should similarly be able to negotiate higher solar payments from customers in return for the higher value received (or, in the case of directly-owned projects, capture that higher value directly). Existing BTM projects will already be made whole, including the return they locked in through their pricing offers and contracts with customers, and should not be awarded additional windfalls above the returns they agreed to, in the event a higher carbon price is imposed on fossil generators.

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

A major question in the large-scale solar procurement process will be whether the MOPR or future versions or alternatives of it actually have the effect of disallowing large scale solar that receives incentive payments under the Successor Program from clearing in the RPM market. If so, and if New Jersey had found it advisable and feasible to use an FRR alternative to avoid the double payments that would result from the MOPR, the RFP and procurement process could be adjusted to invite qualifying solar facilities to submit bids for incentives that would constitute payment for both UCAP and environmental attributes, either jointly delivered or severable. Such bids would be able to identify whether, given the risk of the MOPR to a wide variety of such projects, there would be strategic value to clean energy projects to bid at levels for combined incentives and UCAP that would avoid the downside of either suppressed capacity prices, or unavailable incentive payments, or both in a world with continued interference in state clean energy goals and programs by FERC-mandated measures in PJM's tariff.

More generally, even if the MOPR were to disappear or transform into a benign bidding rule, variability in FERC-jurisdictional capacity and energy prices are virtually certain to occur. To the extent large-scale project developers seek to hedge such risks in their bids for incentive payments in New Jersey's Successor Program, the competitive bidding and bid evaluation processes should be able to process the bids efficiently without any change in bid evaluation or accounting. Similarly, the budget-based capacity targets we recommend would ensure that any such bids would continue to be evaluated and accepted in a manner that is most consistent with the state's

commitment to decarbonization and clean energy deployment, while complying with the statutory RPS cost caps.

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

Yes, as discussed extensively above. We discuss specific deliverability considerations below.

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

Questions 6 (a-d) raise a variety of issues related to the deliverability of solar energy from outside of New Jersey into New Jersey. It is not clear to us how the aspects of deliverability the questions raise relate to the specific meaning of deliverability under PJM's tariff and implicit in the security-constrained, economic dispatch (SCED) used to manage generator output in its energy market. In attempting to answer these questions, we will start by framing them in terms of our understanding of deliverability in PJM.

Deliverability under the PJM tariff has two distinct meanings. The first is called "load deliverability" and results in the locational generation requirements of both the RPM and FRR approaches to meeting PJM's resource adequacy requirement (RA). See PJM Manual 14B, C.2. The only reason this type of deliverability might be relevant to the RPS requirement is if the BPU determines to bundle together the purchase UCAP, for the purpose of complying with PJM's resource adequacy requirement, with the purchase of environmental attributes, for the purpose of complying with the state's RPS requirements. Such "bundled" procurement should, in our view, be explored through the current RA proceeding, and not established through the Successor program.

The second meaning of deliverability in the PJM tariff is "generator deliverability." See PJM Manual 14B, C.3. This meaning of deliverability does not mean that the output of a specific generator can be physically delivered to a specific geographic point in PJM. In fact, such physical deliverability is not possible to arrange or ensure in PJM's energy market. Instead, as Manual 14B explains,

> "Deliverability, from the perspective of individual generator resources, ensures that, under normal system conditions, if Capacity Resources are available and called on, their ability to provide energy to the system will not be limited by the dispatch of other certified Capacity Resources. This test does not guarantee that a given resource will be chosen

to produce energy at any given system load condition. Rather, its purpose is to demonstrate that the installed capacity in any electrical area can be run simultaneously, and that the excess energy above load in that electrical area can be exported to the remainder of PJM. In short, the test attempts to ensure that bottled capacity conditions that limit the availability and usefulness of certified Capacity Resources to system operators will not exist. In actual operating conditions, energy-only resources may displace Capacity Resources in the economic dispatch that serves load."

Manual 14B, C.3, Deliverability of Generation, p. 86. Available at https://www.pjm.com/-/media/documents/manuals/m14b.ashx .

Capacity resources achieve this level of deliverability when, as part of their interconnection procedure, they participate in a comprehensive set of required load flow studies that analyze whether any transmission upgrades will be needed to support their operation at time of peak load. If any such upgrades are needed, the capacity generator must pay its allocated share of them, which can be considerable. Similarly, it must pay for the studies themselves, which also can be a substantial cost.

Generators that do not want to participate in the capacity market can avoid these costs by choosing to interconnect as energy resources rather than as capacity resources. In return for the lower interconnection costs, they forego capacity market revenues. However, as the section of Manual 14B included above notes, these resources can still displace energy-only resources in PJM's energy market.

In light of these specific deliverability options, we make the following observations:

1. The options for deliverability available under the PJM tariff and mode of energy market dispatch and operation do not allow for the specificity of deliverability the staff questions above appear to contemplate:

    a. The most expensive and comprehensive form of generator deliverability available in PJM does not allow a specific generator outside of New Jersey to physically deliver the energy it produces to a New Jersey EDC. Instead, generators in PJM enter into financial "delivery" transactions related to the price of energy at the point where they may be injecting power into the PJM grid, and the price of energy at the point where energy is withdrawn from that grid by a load-serving entity. The actual physical flows of the energy making up the withdrawn MHW are unknown and unpredictable, and will occur due to PJM's SCED process even when the selling generator is not operating at all.

    b. It does not ensure that the "deliverable" generator will displace some other, more polluting generator in the dispatch process, or that it will run at all, at any particular time when New Jersey load serving entities are selling electricity to their customers in New Jersey.

    c. Further, no generator -- whether a deliverable capacity resource or a not-always-deliverable energy resource -- can in any way avoid respecting the thermal and stability limits associated with the transmission interface between New Jersey and other parts of PJM. The SCED process simply will not allow those limits to be exceeded in any specific dispatch interval, no matter what sort of deliverability the resource has qualified for. Further, even when the interface is constrained, it is only the incremental level of energy production, above those constraints, that is shifted to a locational dispatch "downstream" from the constraint; the full amount of energy up to the constraint can continue to flow across the interface.

2. While requiring deliverability would not achieve what we take to be the objectives articulated in the questions above, it would have significant implications for New Jersey. Specifically, requiring all new large-scale solar projects (inside or outside of New Jersey to interconnect as capacity resources would:

    a. Help reduce the risk of the projects' curtailment. The transmission upgrades associated with their development could help protect against curtailment at times of high wind speeds and solar irradiance. Without the added transmission required for capacity resources, these new projects could face a higher risk of becoming "bottled", and curtailed, due to inadequate transmission to export their production from the electrical area in which they are located (which could include New Jersey) to electrical regions where there is sufficient demand to consume any excess power produced in their own electrical region(s).

    b. Increase large scale solar interconnection costs, relative to those they would incur if they choose to interconnect as energy-only projects.

    c. Allow them to participate in the PJM capacity market or to qualify as UCAP for the purpose of an FRR, should New Jersey elect to adopt an FRR for some or all of its LSE's UCAP obligation. The resulting UCAP revenues would offset some or all of the additional interconnection costs.

In light of all the above considerations, we would caution against any including any "deliverability" or "delivery" requirements per se in the Successor Program. Instead, we recommend the BPU consider, instead, between the alternatives of requiring large scale solar projects to interconnect as:

1. capacity resources,
2. energy-only resources,
3. or allowing them to choose as they see fit and selecting projects based on their bid levels alone.

One benefit of the third approach is it would rely on bidding projects to determine which way their net costs would be lower -- that is, whether their expected UCAP sales revenues (e.g. through a unit-specific exemption to the MOPR, or through sales to an FRR entity), would be higher or lower than the added interconnection costs, rather than trying to administratively determine the best result in advance.

Topic 2: Modeling

The modeling conducted by Cadmus and described in the draft Capstone Report was largely informed by the assumptions used in the Transition Incentive program modeling, updated cost data from projects in the SRP, and subsequent stakeholder engagement such as the March 2020 Successor Program cost survey. Staff is interested in stakeholder feedback on Cadmus' assumptions and modeling choices. Staff has identified a number of specific questions below, but encourages stakeholders to share their assessment of the model and modeling assumptions beyond the focus of these questions.

7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Regarding how to set MW targets while maintaining compliance with the legislative cost caps, see the budget-based target allocation recommendation on page 11 of the February 22, 2019 comments of NJCF, NRDC, EDF, NJLCV, and rethinkenergy.nj on New Jersey's Solar Transition Straw Proposal, as included in our additional comments below.[2] Such budgeting may require interventions or modifications in the legacy SREC program to ensure adequate headroom is available under the cost caps to support higher cost in-state resources while also ensuring achievement of the state's RPS goals. See additional comments below for a summary of recommendations articulated by NJCF and NRDC in multiple prior solar transition comments.

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

13) Please provide general feedback on Cadmus's modeling inputs, methodology,

[2] The relevant comments are included in the "additional comments" section below.

and assumptions not already addressed in a previous question.

Additional comments:

A. Land use

Land-use considerations and siting should be a bright-line set of evaluation criteria, rather than a weighted set of evaluation criteria. If BPU provides clarity about lands that are not eligible, then eligible bids can be evaluated solely on price. The Energy Master Plan included sound language regarding the importance of siting and how to approach it:

> For solar energy, investments should be steered toward rooftops, carports, and marginalized land and away from open space. Further, in concert with New Jersey's Climate Resilience initiatives, investments should be steered away from flood zones and other areas deemed especially vulnerable to climate change.
>
> In order to enhance smart siting of solar, the state should better define areas that are considered marginalized, such that they have constrained economic or social value. For example, there are areas of non-preserved farmland that may have poor soil conditions, or non-pristine open spaces that are underutilized, both of which could potentially serve as host sites for solar projects while not compromising the state's commitment to preserve open space. Dual-use opportunities may exist for siting solar on areas of open space or non-preserved farmland, but they must be examined carefully for environmental impacts. NJDEP and NJBPU will coordinate land use policy for solar siting with the New Jersey Department of Agriculture to identify sites that could be used to expand New Jersey's commitment to renewable energy *while still protecting the state's farmland and open spaces.* (EMP, p.112, emphasis added)

To operationalize this within the SREC successor program, lands should be identified that are eligible for incentives under the program, as well as lands that are ineligible. Ineligible lands should include the following:

(1) preserved farmland. For the purposes of this paragraph, "preserved farmland" means land on which a development easement was conveyed to, or retained by, the State Agriculture Development Committee, a county agriculture development board, or a qualifying tax exempt nonprofit organization pursuant to the provisions of section 24 of P.L.1983, c.32 (C.4:1C-31), section 5 of P.L.1988, c.4 (C.4:1C-31.1), section 1 of P.L.1989, c.28 (C.4:1C-38), section 1 of P.L.1999, c.180 (C.4:1C-43.1), sections 37 through 40 of P.L.1999, c.152 (C.13:8C-37 through C.13:8C-40), or any other State law enacted for farmland preservation purposes;

(2) land preserved under the Green Acres Program. For the purposes of this paragraph, "Green Acres program" means the program for the acquisition of lands for recreation and conservation purposes pursuant to P.L.1961, c.45 (C.13:8A-1 et seq.), P.L.1971, c.419 (C.13:8A-19 et seq.), P.L.1975, c.155 (C.13:8A-35 et seq.), any Green Acres bond act, P.L.1999, c.152 (C.13:8C-1 et seq.), and P.L.2016, c.12 (C.13:8C-43 et seq.);

(3) land located within the preservation area of the pinelands area, as designated in subsection b. of section 10 of P.L.1979, c. 111 (C.13:18A-11);

(4) land designated as forest area in the pinelands comprehensive management plan adopted pursuant to P.L.1979, c.111 (C.13:18A-1 et seq.);

(5) land designated as freshwater wetlands as defined pursuant to P.L.1987, c.156 (C.13:9B-1 et seq.), or coastal wetlands as defined pursuant to P.L.1970, c.272 (C.13:9A-1 et

seq.);

(6) lands located within the Highlands preservation area or Highlands Agricultural Resource Area as designated in subsection b. of section 7 of P.L.2004, c.120 (C.13:20-7);

(7) lands prioritized for farmland preservation by the NJ SADC, Municipalities or County Agricultural Development Boards as identified by Agricultural Development Areas and Farmland Preservation Project Areas;

(8) upland forests as identified by NJ DEP land-use, land-cover maps; and

(9) critical wildlife habitat ranked 3, 4 or 5 in the State of NJ Landscape Project.

Eligible lands should include the following:

(1) Brownfields

(2) Landfills

(3) Rooftops

(4) Parking lots and decks

(5) Areas of historic fill

(6) Areas designated as in need of redevelopment

(7) Canopies over impervious surfaces

(8) Marginal farm or other open lands that fall outside of the ineligible lands above

B. Budget-based MW targets for the Successor Program (from NJCF, NRDC and NJLCV comments on Solar Transition Straw Proposal of February 22, 2019):

7. *Should the Board set MW targets for the Successor Program?* For the Successor program, the Board needs to actively plan and manage the budget to meet the RPS goals, as discussed above. This means projecting and managing to a dollar budget for new and recurring solar incentive expenditures in each year. This is essential because the RPS cost caps are denominated in dollars, not in MW. Once these dollar budgets are established, the number of MW to be procured in each year can be determined, e.g. as follows:

a. Determine the total amount of the budget (net of any banking, borrowing and offsetting net ratepayer benefits) that remains for each coming year, after accounting for

   i. projected recurring payments for Legacy, Pipeline and prior Successor programs for each year, and

   ii. projected recurring payments for prior commitments for other Class 1 renewable energy (procured as RECs) for each year;

b. Spread that remaining budget for each year over the combination of new solar MW and new Class 1 RECs that achieves all three of the following objectives:

   i. Maximizes the amount of new solar, while also

   ii. Procuring enough new Class 1 RECs to meet the RPS goals, and

   iii. Allows the RPS goals in future years to be achieved without exceeding the budget in any future year.

c. This means spreading a given amount of money (determined in Steps (a) and (b) over as much new solar as it can buy while meeting the RPS goals and without

exceeding the budget in the current year and, as projected, in each year going forward. This is inconsistent with simply setting MW goals without a current and future year budget constraint. Instead, the Board must set dollar budgets and then using competitive procurement, declining block tariffs, or similar incentive programs, such as are required by the CEA, to get the most amount of new solar for those dollar budgets, while preserving enough money in the budget to also procure enough lower cost RECs to achieve any unmet portion of the RPS goals in the current year and, similarly, for each future year. The amount of MW so procured could be expressed as a percent of total retail sales or as a share of the total RPS requirement, but this form of expression should always be based on a budget consistent with meeting the RPS goals.

d. Because these budget plans involve forward projections, it is essential to update them each year for actual costs and changes in projected future costs. This approach could ideally be coordinated with or integrated into the state's Energy Master Planning process.

C. Headroom conservation to support RPS goals and diverse clean energy resources consistent with the legislative cost caps:

In NJCF and NRDC solar transition comments of January 31, 2020, we reviewed and summarized previous filed recommendations for

> "a 'price collar' approach, with the top end of the price range constrained by a mechanism that would function like the SACP, but would be established at a lower level by the BPU under its authority to do whatever is necessary to ensure compliance with the RPS cost caps. We have suggested evaluation and careful consideration of several alternatives for the mechanism that would create the price floor, including a buyer of last resort approach, and an opt-in to a new solar compensation program that would offer a fixed price for a fixed term. If the combination of this lower price and a longer term were more attractive than the [price] levels to which the legacy program could fall, enough legacy projects could be expected to voluntarily opt-out of the legacy market and into the new, fixed price program to cause SREC prices to fall to the level of the new program. Such a program could, for example, be set up as part of the successor program or potentially even as part of the modified SREC program."

Now that the SREC program is closed and better insights are available into its length and potential prices in the post-closure period, we recommend the BPU explore the potential need for such measures to ensure adequate headroom for the Successor Program.

Clean Energy Ventures

September 8, 2020

Ms. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
Post Office Box 350
Trenton, New Jersey 08625

Re: New Jersey Solar Transition
Successor Program Capstone Report Staff Request for Comments
Docket No. QO20020184

Ms. Camacho-Welch:

NJR Clean Energy Ventures Corporation (NJRCEV) appreciates the opportunity to offer comments in response to the request for stakeholder input on the Solar Successor Program Capstone Report.

In the past decade, NJRCEV has invested nearly $950 million to construct more than 350 megawatts of solar capacity in New Jersey, with additional projects currently under construction. As an active participant in the State's solar market, we appreciate the efforts that went into the development of this report, particularly the opportunities for stakeholder input. We support the commitment to long-term solar growth and the role it can contribute toward New Jersey's clean energy goals.

We have provided detailed information within our answers that follow but would like to highlight several key comments.

- We support continuing to utilize the fixed, standard offer incentive structure of the Transition Renewable Energy Credit (TREC) program for the successor program, supplemented with a new competitive solicitation structure for the large grid-connected project market segment. The successor program should **build on the TREC program by adding new location, technology and off taker factors** to efficiently compensate the development of a diversity of projects.

- NJRCEV has identified **several important modeling assumptions used by Cadmus leading to derived incentive levels that are inadequate** to support new investment. Based on our experience, Cadmus assumptions on power purchase rates and solar capacity factors for average/median projects are too high, while all-in installation costs are below levels achievable in the New Jersey market.

- **Projects outside of New Jersey should not be eligible for inclusion** in the successor program. New Jersey has a vibrant local solar industry that can be leveraged and scaled to provide economic and energy benefits to the State consistent with the economic development goals of the Energy Master Plan (EMP). There are a number of market segments with untapped potential that should be more fully penetrated before out of state projects are considered, including grid-connected rooftop, large utility scale, community solar projects, public net-metered projects, floating solar and landfills/brownfields.

- To adhere to the principles of the solar transition and advance the goals of the EMP, the BPU **should establish a multi-year program cap that aligns with the solar installation targets in the Integrated Energy Plan (IEP), with declining incentives reflecting anticipated cost reductions.** In contrast to a "one price fits all" SREC market, **the successor program will require ongoing, active monitoring and management by the BPU Staff** to ensure industry continuity and growth in dynamic, ever changing energy markets.

We look forward to continued dialogue on the solar successor program that advances the BPU's important goals.

Sincerely,

DocuSigned by:
Larry Barth
D017221A586A43F...

Larry Barth
Director of Corporate Strategy

Cc: Mark F. Valori, Vice President
Chris Savastano, Managing Director of Development
Katie Feery, Manager of Corporate Strategy
Steve Oborne, Sr. Corporate Strategy Analyst

Topic 1: Recommended Incentive Structure Design

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively set incentives for smaller projects.

a. Do you agree with this recommendation? Why or why not?

Yes. Continuing with fixed incentives as the primary incentive program draws on the design work and implementation process developed for the TREC program. Given that the NJBPU proposed goal is to approve the successor program this fall, using a structure that has already been created and that participants are familiar with would best align with the relatively short goal timeline.

We agree with Cadmus that a bundled, all-in compensation program like the Solar Massachusetts Renewable Target (SMART) tariff is **not** appropriate at this time.

A competitive solicitation approach should be developed and implemented for large projects that are connected to the wholesale grid. A working group should be convened by the NJBPU to support development of the solicitation structure.

b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

Projects eligible for solicitation should be defined as "utility scale projects" consistent with Senate Bill S-2605, which recently passed through the Senate Energy and Environment Committee, provides a good starting point, defining utility scale as wholesale, grid-connected projects over 10 megawatts (MW). Eligible projects should be connected to distribution in New Jersey. All other projects would be eligible for standard offer, fixed, administratively-set incentives. Over time, based on experience and learning curves, the criteria or market segments for project eligibility for solicitation can be modified as appropriate.

We agree with the Cadmus recommendation to conduct a market potential study for solar in New Jersey, which can inform further program refinements.

> **i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.**
>
> Yes. Wholesale grid connected, utility scale projects over 10 MW represent an untapped market segment critical to reaching New Jersey's clean energy goals. In this market

segment, there are currently only 21 projects installed representing 310 MW of capacity, or less than 10 percent of the market

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

The first phase of the solicitation should only be for wholesale grid connected projects subject to PJM market revenue streams. Bidders would bid for an incentive reflective of a project's costs, expected PJM revenue streams and market risks. Net-metered projects, regardless of size, would not participate in the solicitation, and instead would be eligible for a fixed, standard offer incentive with administratively set prices.

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

Yes, NJRCEV agrees that all net-metered projects should rely on an administratively-set, fixed incentive.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

NJRCEV does not recommend a different option.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

All Subsection (t) projects should be compensated with administratively-set incentives. State policy supports landfills as preferred solar siting locations and these preferred projects should not have to compete directly with non-landfill projects in a solicitation.

Solar on landfills and brownfields is complex and non-standardized, with lengthy development cycles involving unique permitting requirements. Accordingly, since 2011, there have been an average of three projects or 20 MW of subsection (t) projects installed each year, with an average system size of less than 10 MW. Alternatively, the utility scale solicitations will encourage development of larger projects and greater market potential.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

NJRCEV agrees with the concept.

2) If NJBPU were to implement administratively-set incentives:
a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

With extensive reliance on administratively set prices, a hallmark of the successor program's structure should be flexible and active management of program goals and incentives by the NJBPU Staff.

Incentives should be subject to automatic or administrative adjustments based on attainment of targets and changes in known external market or policy drivers, and subject to final approval and adjustments by NJBPU Staff as a result of ongoing monitoring and review processes.

In order to reduce incentive costs and drive greater industry productivity, we support a declining schedule of incentives with prescribed changes based on anticipated industry cost reductions to incentives that are triggered upon attainment of growth milestones.

Milestones can be anchored in multi-year, long-term goals established in the EMP and IEP process, with new incentive triggered as goals are achieved. For example, the 2025 EMP goal of 5.2 gigawatts (GW) of total installations might support about 500 MW per year in incremental solar installations for the next four years. These annual targets, allocated to each major market segment, could form the basis of the interim milestone which trigger new incentives.

With declining incentives, transparency is critical so that market participants have a clear picture of the status of incentive levels. Changes in incentive levels should be based on industry consensus expectations for cost trends. In addition, incentives could be automatically adjusted for known external forces with material impact on project economics. For example, once the details of any solar Investment Tax Credit (ITC) increase or extension become known, incentive adjustments and effective dates could be calculated and communicated to stakeholders in advance of the change.

To support industry continuity and sustain growth in dynamic energy markets, we believe it is important that the NJBPU Staff conduct an annual review to consider trends and performance of each market sector and make adjustments to the future incentive schedules as needed.

Managing a multi-year program with administratively determined incentives in multiple market segments with ongoing monitoring is a significant departure from a "one-price-fits-all" SREC

program. To be successful, the NJBPU must consider the organizational and staffing impacts of these new activities and responsibilities.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

There should be base incentives for residential, commercial net-metered, community solar and grid-connected projects for large, medium and small project sizes, with differentiators applied across the following factors:

1) EDC Territory – A factor should be applied to normalize energy rates across New Jersey's electric utilities as highlighted by Cadmus. Electric utility rate design is well-beyond the scope of the successor program but given the magnitude of the proposed energy transition we encourage further work by the NJBPU to understand future direction of utility rates and ratemaking approaches.

2) Preferred Factors including:
    a. Siting – As discussed above, site locations that are optimal for solar may carry higher costs. These include, but are not limited to, landfills, rooftops requiring replacement or structural upgrades, brownfields and parking lots.

    b. New Technology – To spur innovation in solar development, factors should incentivize emerging solar technologies including battery storage and floating solar, as well as solar connected to electric vehicle charging.

    c. Low-to-Moderate Income and Environmental Justice locations– These projects could potentially carry higher credit risks that could be offset with an appropriate incentive.

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

As discussed in the response to 2a, an actively managed, administratively-set incentive can provide industry participants a line of sight to reasonable and achievable cost reduction. Active monitoring by the NJBPU, along with open communication and transparency on program status and future incentive levels would make this possible.

In the competition for customers and project sites and with incumbent technologies, market forces continue to drive the solar industry globally and locally to innovate and improve

productivity. NJRCEV has been successful in reducing its all-in install costs by nearly 75 percent in the past decade.

Sustaining additional cost reductions in the future goes well beyond the incentive structure design and requires a consideration of the structural issues that drive costs including labor, permitting, land acquisition and utility interconnection. Opportunities for sustainable cost reductions in the future will require ongoing collaborative efforts among policy makers and stakeholders.

Solar growth in New Jersey continues to be constrained by lack of an appropriate framework for incorporating the benefits solar provides to New Jersey ratepayers and the distribution system. Other states with aggressive clean energy goals have made more progress on the path of defining and valuing these benefits. In New York for example, compensation for solar distinguishes between benefits solar provides, with incentives (subsidies) limited to what is needed to make projects economical.

These are further discussed in Question 6a in the context of solar's economic impacts and question 10 in the context of cost caps.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

Given a fixed incentive structure, NJRCEV supports the 15-year incentive for administratively-set incentives. We also support longer-term incentives commensurate with the useful life of the solar assets, reflecting the time period over which value is delivered to ratepayers, and to encourage that systems will be maintained and operated for maximum performance. Longer term incentives should also be considered if this would contribute to meeting the cost caps.

For larger solar projects eligible for the solicitation, we support a longer incentive term of 20 to 25 years, particularly if these are backed by utility contracts.

As an owner of 217 MW of wholesale grid projects, NJRCEV acknowledges that cash flows from PJM markets may be insufficient to cover operating and maintenance costs, and may discourage expenditures such as inverter replacements or other unplanned maintenance leading to premature retirements of projects. The Cadmus Report appropriately references the challenges of "project capacity 'falling off' in later years[1]" and how the State will need to account for how to replace legacy SREC and TREC projects. NJRCEV recommends that a future NJBPU

[1] "New Jersey Solar Transition Draft Capstone Report: Successor Program Review," Page 54

working group be appointed to develop a repowering program to extend the useful life of assets for projects that roll-off their SREC and TREC eligibility periods.

3) If NJBPU were to implement incentives based on a competitive solicitation:
a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

The solicitations should be designed to maximize the potential that projects will be installed, with a high bar created for project eligibility. Project eligibility can be limited to sites with certain PJM interconnection approval milestones, and with evidence of all local and State permits for site control. We support escrow payments as a requirement to participate in the solicitation. Over time, escrow payments could be differentiated for bidders with a demonstrated ability to complete an installation or those with significant balance sheet strength.

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

An unbundled, incentive-only structure is consistent with a fixed-incentive approach being recommended for projects with an administratively set price.

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single clearing price system.

A pay-as-bid system allows developers to get paid what they bid, with projects accepted up to the quantity of capacity and overall cost that the NJBPU is targeting. Alternatively, a single clearing price system encourages zero bids and does not accommodate participation for a variety of projects types.

d. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

Pre-defined, transparent caps and floors are preferable and can be more efficient for participants than bids that are disallowed post-auction based on NJBPU criteria unknown to bidders. Auctions in other markets, such as PJM capacity markets, have demonstrated the need for significant administrative guidance to ensure efficient markets and pricing.

e. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example,

should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

A solicitation approach for large projects does not need to be "always-on." Periodic solicitations reflecting long project development cycles would suffice provided the market has visibility to a schedule that demonstrates a commitment to market size and continuity. Senate Bill S-2605 provides an initial starting point of 375 MW per year, which can be further modified based on the Cadmus recommended market potential study to better understand the true potential in the utility-scale market and how it fits with the potential of other markets to achieve the State's goals. Additionally, the frequency of solicitations should reflect the administrative impacts of the solicitation process.

f. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

Yes. Please see NJRCEV's response to factors in question 2b. As stated, NJRCEV does not agree that out-of-state projects should be included in the program at this time.

g. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

Solicitations should be backed by long-term EDC contracts. As indicated in question 2d, qualification should be extended to a 20- to 25-year life to align with the term of the contract.

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

As mentioned in the previous response, solicitations should be backed by long-term EDC contracts. Contracts with credit-worthy EDCs can reduce financing costs for project developers relative to tariff- or market-based approaches.

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

The response to question 3a recommends the use of escrow payments and project maturity as eligibility requirements to ensure that qualified projects with a high probability of being constructed will be included in the auction.

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.
a. Generally, how can this flexibility be incorporated into the design of the Successor Program?

Please see the response to question 2a, which addresses flexibility through active management of the successor program.

b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

Please see the response to question 2a, which addresses "automatic adjusters" with specific focus on potential changes to the ITC which will be most impactful to successor incentives in the near term.

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

The direct impact on wholesale market changes would likely be on wholesale grid projects, which can be accommodated by market participants in response to ongoing solicitations. Impacts on retail rates from PJM and FERC changes may be more indirect. Ongoing and active management by NJBPU Staff to track external developments in dynamic energy markets will be important to ensure industry continuity and growth.

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

The Energy Master Plan also recognized the "significant economic benefits[2]" and "additional resiliency[3]" that in-state renewable energy installations can provide. Based on the National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impact model, for

[2] "2019 New Jersey Energy Master Plan," Page 215
[3] "2019 New Jersey Energy Master Plan," Page 202

every dollar invested in a New Jersey solar project, an additional $3 of indirect economic activity is generated.[4] With solar installation costs averaging $2.49 per watt, an annual goal of 450 MW of solar could spur $1.1 billion in annual investment for a total of over $3 billion in economic activity. In-state projects support the EMP's goal to train and hire workers to support jobs in renewable energy.

There are many segments of New Jersey's solar market that have yet to mature, including grid-connected rooftop, large wholesale grid, community solar, public net-metered and floating solar. Along with established residential and commercial markets, realizing the potential in these untapped market segments is likely to support 400 to 500 MW per year to meet the State's 2025 goal. Out-of-State projects should be considered at such time in the future as it is proven that the State will be unable to meet its goals with in-State projects.

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

The BPU's innovative "connected to distribution" requirement has supported a robust solar market creating local jobs and economic activity. This threshold test should remain intact to guide future solar development activity in the State.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

NJRCEV believes the BPU should seek to adapt and leverage the connected to distribution requirement as needed to accommodate projects connected at higher voltages located in the State.

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

Please refer to NJRCEV's response to question 6a.

<u>Topic 2: Modeling</u>

7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

The breakdown of cases presented in this table is appropriate with factors applied for the various criteria noted in Question 2b.

[4] "Economic activity" includes construction spend, 'value-added' payments, and induced impacts – capturing labor dollars introduced into the local economy

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

Since the code went into effect in March, we have seen detrimental impacts to the market. According to the latest transition incentive pipeline data, projects with approvals prior to March 2020 have an average system size of 10.6 kilowatts (kW), while projects approved after the new code went into effect have an average size of 8.5 kW. This represents a 19 percent decrease in average system size potentially caused by the code change.

Smaller system sizes have an adverse impact on project economics. Customer acquisition costs do not decline with smaller projects sizes. In addition, panel selection and equipment pricing have also been affected, as higher-priced, higher-wattage panels are used to provide more solar savings for customers to offset the smaller roof space.

b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

The industry does not find that the cost data recovered from NJCEP applications accurately reflects the all-in market price of solar. It is not clear if the NJBPU solicited cost data in the SREC Registration Program application is adjusted to reflect the actual all-in costs incurred. For the most reliable data (from a neutral third-party), NJRCEV recommends Cadmus use Lawrence Berkeley National Laboratory's (LBNL) "Tracking the Sun" report.[5] We find this data to sufficiently capture actual all-in costs, inclusive of acquisition costs, interconnection costs, etc. and, on average, it is reflective of the costs across the NJRCEV portfolio.

Based on a comparison of the LBNL and Cadmus costs, we find the Cadmus cost assumptions to be understated by about 15 percent, on average – upwards of near 30 percent for large commercial and industrial (C&I) roof mounts.

[5] Tracking the Sun: Pricing and Design Trends for Distributed Photovoltaic Systems in the United States, 2019 Edition, Lawrence Berkeley National Laboratory. C&I small is defined as <100 kW and C&I large is defined as 100 kW to 5 MW

Segment	LBNL Install Cost ($/watt)		
	50th perc	20th perc	80th perc
Resi	$3.61	$2.99	$4.09
C&I Small	$2.86	$2.42	$3.44
C&I Large	$2.25	$1.53	$2.70

Segment	LBNL $/watt	Cadmus $/watt		Δ	
		Ground	Roof	Low	High
Resi	$3.61	-	$3.45	-	-4%
C&I Small	$2.86	$2.30	$2.55	-19%	-11%
C&I Large	$2.25	$1.85	$1.65	-18%	-27%

c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

Given the diversity of financing and capital structures, NJRCEV recommends that Cadmus model incentives using an after-tax unlevered internal rate of return (IRR), using the 7.5% rate used in the design of the TREC program in the Fall of 2019. NJRCEV does not believe risks and cost of capital have changed materially in the past year, nor is the proposed substance of the successor program incentive structure materially different than the TREC program.

d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

NJRCEV offers the following comments on revenue assumptions:

1) We have concerns over the **power purchase agreement (PPA) rate assumptions**. Market demand is currently supporting a PPA rate with a discount greater than the modeled 15 percent of retail rate. Additionally, the Cadmus model includes a 2.5 percent escalator, but as indicated on Page 67, Figure 8, retail rates have remained relatively flat the past 10 to 20 years. The discount provided through the PPA is a direct benefit to the customers, and savings over time is a crucial selling point of solar for homeowners and businesses. With the assumptions modeled by Cadmus, there is concern that the PPA rate could surpass the actual utility rate by 2027. In the near-term, this would severely impact customer acquisition, and in the longer-term, has implications for customer satisfaction. Given flat retail rates and current market demand, NJRCEV recommends Cadmus model PPAs without an escalator, assuming a 25 percent Year 1 discount to retail rates for residential, and a 35 percent Year 1 discount for commercial.

2) Given the intermittent nature of solar production, NJRCEV does not assume **demand charge** reductions for commercial net metered solar projects. Battery storage, with additional investment, would be required to support demand charge savings. As noted above, the inability to assume demand charge savings from solar further justifies the need for higher PPA discounts for commercial customers than for residential customers, who have a greater portion of the total bill tied to volumetric energy prices.

3) No **capacity revenues** should be assumed in the wholesale grid project revenue mix. With the PJM Minimum Offer Price Rule (MOPR) possibly prohibiting projects from receiving capacity revenues at all, Cadmus is significantly overstating that grid projects will receive 40 percent of their non-incentive income streams from an unreliable source. Beyond MOPR, PJM's Capacity Performance rules, which require year-round participation with significant penalties for underperformance, deter most New Jersey solar projects from participation in PJM capacity markets. Currently, solar makes up less than 1 percent of PJM's capacity resources, with 125.3 MW participating[6]. PJM does not disclose in what state this solar is located; however, even assuming this is all New Jersey solar, it would represent less than 18 percent of eligible projects.

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

NJRCEV conducted an analysis on the Year 1 actual production factors from 100 MW of projects installed over the past three years. Cadmus is modeling between 10 to 20 percent higher than NJRCEV's realized production. NJRCEV is selective in project acquisition, utilizes high performance equipment and employs best-in-class asset management techniques to maximize performance in our solar portfolio. From our experience, the Cadmus capacity factors are representative of the upper end of the typical New Jersey solar project. NJRCEV will share details on specific project performance with Cadmus and NJBPU upon request.

	NJR Portfolio (2017-19)		Avg. Y1 kWh/kW		
Project Type	# of Proj	MW	NJR	Cadmus	Δ
Commercial Ground	3	18.9	1,202	1,419	-15%
Commercial Roof	12	4.1	1,108	1,376	-20%
Grid Ground	8	82.9	1,289	1,428	-10%

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

NJRCEV recommends modeling all projects in the successor program at an ITC rate starting at 22 percent. We do not believe most projects will safe harbor modules given the costs of warehousing, double shipping and the expectation of ongoing declines in equipment costs. The ITC should be modeled to step down to 10 percent in 2022 for residential third-party owned, commercial and utility scale projects, and should go to zero in 2022 for residential direct-owned systems.

[6] https://www.pjm.com/-/media/committees-groups/subcommittees/irs/20180305/20180305-item-10-intermittent-resource-participation-in-rpm.ashx, Accessed September 3, 2020.

The election in November also causes a great deal of uncertainly around the ITC, which may give developers pause on safe harboring, particularly with the costs noted above.

If the successor program is going to open to new applications in early 2021, then it is likely that any projects that do safe harbor will be completed under the TREC program.

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

NJRCEV uses a proprietary third party-curve that models a forward-looking curve with a relatively flat trend on energy prices through 2045. We believe this is more realistic than the 2.5 percent increase Cadmus is using.

There are two primary drivers for the relatively conservative view on forward power-curves in the model used by NJRCEV. The first is lower natural gas prices. In the near-term, natural gas prices are indirectly impacted by the COVID-19 pandemic, but in the long-term, a low natural gas price forecast is driven by sustained lower prices, high levels of supply, and lack of pipeline development. The combination of these assumptions will put downward pressure on prices in the Marcellus region, most of which is located within PJM. The second driver is increased renewable penetration throughout PJM, but particularly in the eastern portion of the region where several states, including New Jersey, have increased renewable energy targets.

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Please see response to question 2. EMP and IEP goals can provide the target for a multi-year program cap.

Depending on when the successor program is rolled out and how much is built in the TREC program, the total program goal would translate to an annual MW goal per year in the successor program, which should be allocated to market segments based on historical trends, future expectations and policy preferences. These annual MW targets could provide the basis for thresholds for prospective incentive reductions. Based on the TREC Rule posted on May 18, the RPS would be adjusted automatically based on what is built.

In compliance with the cost caps, the NJBPU should respect other solar transition principles including protecting investor value and supporting long term solar growth. Input assumptions to the cost cap calculation provided in the Cadmus report appear reasonable, including legacy SREC project costs.

Compliance with cost caps is within the responsibility of the NJBPU, and the agency provided innovation and leadership in recently adopting banking and borrowing cost cap surpluses across

years to smooth the transition to the TREC program. A similar approach may be needed for the successor program, including consideration of a methodology proposed by the New Jersey School Boards Association in the NJBPU's Cost Cap stakeholder proceeding held in early 2020 to credit solar costs with solar benefits.

Cost caps become less of a constraint after the mid-2020's as legacy project costs decline due to a significant amount of capacity rolling-off of SREC eligibility.

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

NJRCEV has no view on this as we are a third-party owner for all our net-metered projects and Cadmus has properly recognized there is no direct-owned/third-party distinction needed for wholesale grid projects.

12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

Based on limited tests, the SAM model appears to produce sufficient incentive levels if the proper assumptions noted above are used; however, NJRCEV experienced technical issues in running the SAM model due to the ability to import weather data. NREL is aware of these issues and is working to fix the problem.

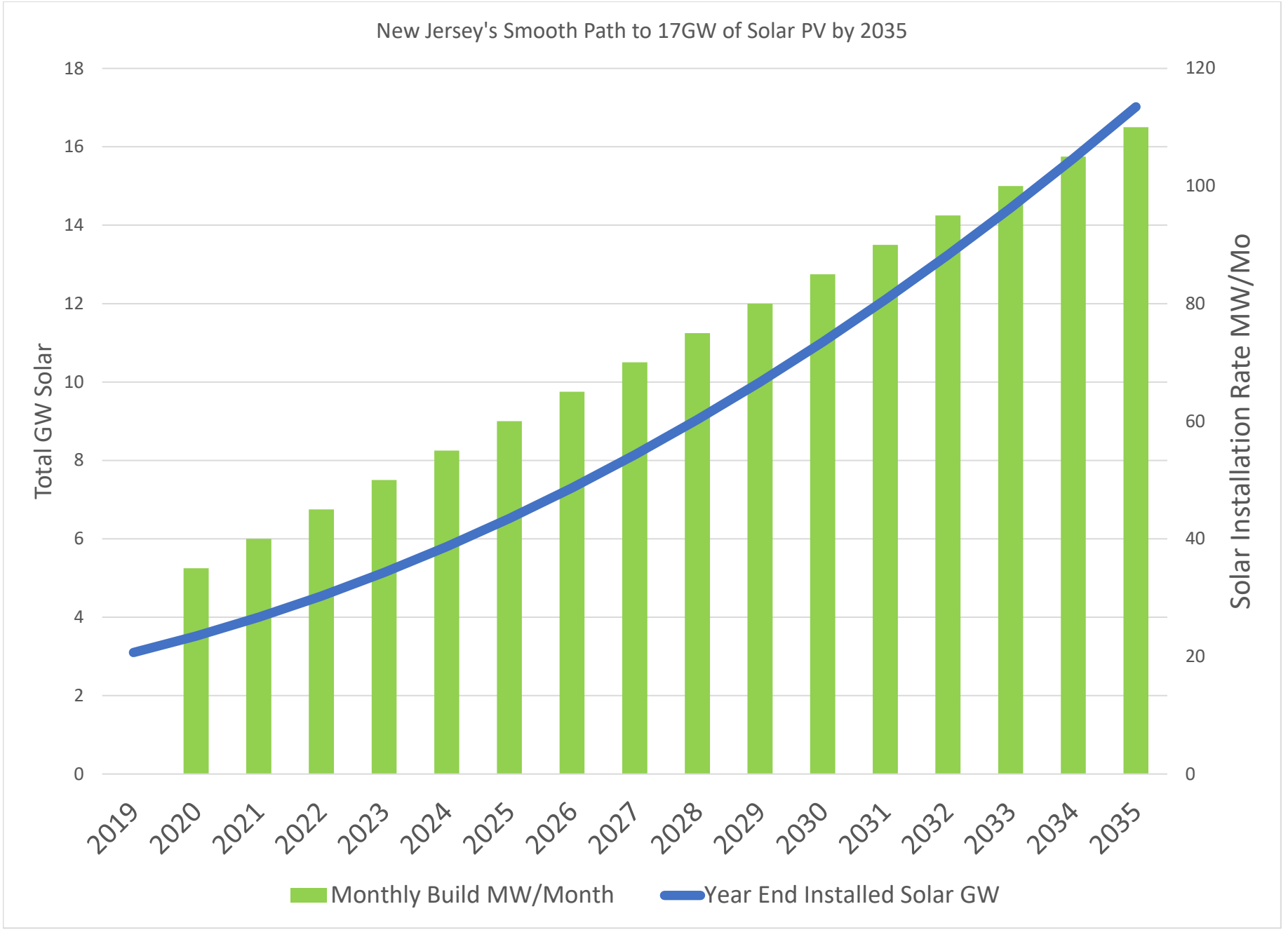
13) Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

The report speaks of two extensive modeling efforts – one at a project level and one at a macro-market level to determine the amount of solar that could be built, project forward-retail sales, etc. This model has not published.

Only four projects types were run in the NREL SAM file provided:

1) C&I direct-owned rooftop (medium)
2) Grid ground-mount
3) Direct-owned residential
4) Third-party owned residential

NJRCEV would appreciate the opportunity to review the remainder of the modeling to verify its accuracy.


New Jersey's Smooth Path to 17GW of Solar PV by 2035
Total GW Solar
Solar Installation Rate MW/Mo
0
2
4
6
8
10
12
14
16
18
0
20
40
60
80
100
120
2019
2020
2021
2022
2023
2024
2025
2026
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2028
2029
2030
2031
2032
2033
2034
2035
Monthly Build MW/Month
Year End Installed Solar GW

New Jersey 17GW Solar by 2035
Gabel Associates
3/20/2020

Calendar Year	Year End Installed Solar GW	Monthly Build MW/Month	Annual Build MW/Year
2019	3.1		
2020	3.5	35	420
2021	4.0	40	480
2022	4.5	45	540
2023	5.1	50	600
2024	5.8	55	660
2025	6.5	60	720
2026	7.3	65	780
2027	8.1	70	840
2028	9.0	75	900
2029	10.0	80	960
2030	11.0	85	1020
2031	12.1	90	1080
2032	13.2	95	1140
2033	14.4	100	1200
2034	15.7	105	1260
2035	17.0	110	1320

New Jersey Solar Transition
BPU Docket No. QO20020184
Comments from NJSBA in response to
the BPU Notice of August 11, 2020

Introduction

The New Jersey School Boards Association (NJSBA) appreciates the opportunity to provide these comments in relation to the notice that was released on August 21, 2020 regarding the Solar Successor Program.

NJSBA is statutorily mandated to represent all of New Jersey's public school districts and has been deeply involved in the BPU's solar transition issues over the past few years. Public schools are a key sector for solar energy development and have already developed over 600 solar energy projects.

Solar projects at schools are vitally important for a number of reasons: they reduce school budgets, help stabilize property taxes, create savings for other educational initiatives, become part of the educational curriculum, and demonstrate the benefits of solar energy to the community at large. The BPU must create a stable solar investment climate so schools can continue to reap the benefits of solar for the greater good of their districts, taxpayers, students, and communities.

Our goal is to work with the BPU to develop a Successor Incentive Program that allows for continuing opportunities to develop solar projects that can reduce public costs, while protecting ratepayers. We are hopeful that the BPU will recognize public schools as a key sector and will assure the opportunity for growth of solar energy at public schools.

The NJSBA's specific comments are below.

1) Recommended approach to the pricing for the Successor Program

a) Differentiate between net metered and grid projects:

NJSBA asks that the Capstone recommendation that the BPU distinguish between "small" and "large" projects be amended to change this distinction; to change this will serve to treat net metered projects (which include Community Solar projects) separately from open space grid supply projects. The "large vs. small" distinction used by Capstone to determine whether a project gets a fixed incentive payment or undergoes a competitive action process is inappropriate relative to the BPU and State policy, which is built around net metered vs. grid projects.

Instead of separating project types by MW size, the BPU should build its incentive structure as follows:

- Net Metered Projects: fixed fifteen-year incentive payments with multipliers for different project types (a structure similar to the TREC program.)

- Open Space[1] Grid Projects: auction approach

- Preferred Site Projects: Fixed fifteen-year incentive payments with multipliers for different project types (a structure similar to the TREC program.)

This approach recognizes key priorities of New Jersey, i.e. land use, economic development, and renewable energy policies.

Land preservation and development that is respectful of New Jersey's dwindling open space is vitally important. Including open space grid projects in a competitive procurement process will allow the BPU to set size and land use restrictions. Accordingly, this approach will allow the BPU and the State to manage the growth of grid projects in New Jersey.

b) Net metered projects should have a fixed incentive

Net metered projects have historically been at the heart of New Jersey's solar program: they represent a way for individual customers to reduce their energy costs, improve job growth and economic competition and, for schools, stabilize property taxes.

Net metered projects should not be required to enter into a competitive solicitation to sell its Successor SRECs (hereinafter called "SREC2"). Instead, the approach used for TRECs (a set fixed price paid over a fifteen-year period through an administrator engaged by the EDCs) should be repriced and used in the Successor Program for net metered projects. **The special and unique benefits that solar projects at schools provide to the community, taxpayers, students, and the state should be recognized in setting their incentive levels.**

Making net metered projects "jump through the hoops" of a competitive solicitation process increases transaction costs as a percentage of total project costs and will hurt project development and impose costs on ratepayers. Of particular note, requiring a competitive bid process for determining the SREC2 incentive is especially difficult for

[1] "Open Space" includes farmland that is not otherwise prohibited for solar use under New Jersey law; and other open space.

public sector projects that must undertake complex public procurement of solar projects. Specifically, if BPU were to require an auction or other SREC2 bid process, it creates a severe "chicken and egg" development problem: when a school district conducts its own procurement process to designate a solar developer, it will be very difficult for a school district to determine which developer to award the project to if the district doesn't know final pricing until after the project competes in a BPU SREC auction; and at the same time, a developer cannot bid in a BPU SREC2 auction until it is selected by the school district. An auction process will make it very difficult for a public entity to develop a solar project.

In addition, because net metered projects tend to be smaller than grid projects, and because they are central to New Jersey's solar development policies, these solar projects should not be required to competitively propose its SREC2 prices and go through an "auction" process. Instead, the BPU should set a SREC2 structure similar to the TREC design for net metered projects. BPU would fix the SREC2 price administratively based on analysis and projects would then be developed under the multiplier system. To protect ratepayers the SREC2 values should be reset every three years to track costs and markets.

c) Preferred site projects should have a fixed incentive

Preferred site grid projects cover an array of project types that will enable New Jersey to meet its substantial solar goals and minimize the use of open space. These are projects on sites such as brownfields, landfills, quarry sites (land or water based), dual use (preserving existing farm use underneath solar facilities), and community solar - all of which should be should be prioritized in New Jersey solar development ahead of open space grid projects.

d) Open space grid projects should be priced through a competitive process

The BPU should have a competitive process for SREC2 for open space grid projects. As part of this process, there should be appropriate land use considerations and restrictions in place, including no farmland development that does not meet dual use criteria.

To simplify program administration for large projects, auction results in the first year could also set the price for the following two years. After the first year, projects would be approved on a first come, first served basis using an application queue similar to the current SRP applications.

2) <u>A key assumption in the Capstone analysis – expected savings from a solar project – should be adjusted to reflect the realities of the marketplace</u>

One of the key assumptions in calculating the appropriate level of incentive payment for net metered projects is the level of savings a customer can expect. If the model assumes a lower level of savings, then the level of incentive needed to yield those savings will be less as well. The Capstone analysis assumes a level of 15% savings for commercial net metered solar projects. This assumption is unreasonably low, and its use will result in a severe downturn in solar development in the commercial sector, including at schools and other public entities. The 15% level used by Capstone is simply unrealistic as school districts, businesses, and the commercial users will not pursue a project with that level of savings.

There are a multitude of reasons for this, but the inapplicability of a 15% savings assumption basically comes to down “bandwidth” and “opportunity cost”.

Put yourself in the place of a business administrator or facility manager at a public school district: your professional life is overloaded with an unending set of issues and challenges - managing budgets, buildings, school policies, supporting education, and facing the inevitable daily operating issues. Investing the time (no less the funds) to develop a solar project competes with these demands. In this context it should be easy to see why 15% savings (which equates to annual savings in the range of $4,000 for 300 kw project) will not draw the attention and time needed for development. Based on the experience of the NJSBA, drawing from the development of hundreds of solar projects, savings of between 30% to 40% must be forecasted for a district to move forward. Similar expectations are the case for other public and private sector energy users.

Additionally, this higher savings level is needed because solar energy represents exchanging the moving price of utility supplied power with the fixed price of solar energy. Not only must the solar energy produce savings, the savings must be sufficient to offset the possibility that electric prices will decline, not increase. Utility rate increases are normally included in an analysis of costs savings. However, customers considering solar energy also test what their investment looks like if utility rates decrease and need to see that their savings are maintained in that scenario. This provides further evidence of why a fifteen percent savings assumption is inadequate.

In determining the appropriate percent savings, it is important to consider that on government facilities there is typically less space than is needed for 100% of the electricity to be generated by solar. Therefore, on the percentage of electricity that can be produced from solar there needs to be a greater savings , greater than 30%, to get to at least a 10 % savings overall. As stated above, the forecasted savings from a solar project must be between 30% to 40% for a district to find a solar project worthwhile. Accordingly, the Capstone analysis should be adjusted to assume 40% percent customer savings. Without this assumption, development of solar at school districts and other public entities will be

severely restricted.

3) **Use Energy Master Plan (EMP) solar goals to set solar capacity amounts while protecting ratepayers**:

The Successor Program should account for the growth curve required to achieve New Jersey's EMP solar goal of 17 GW installed by 2035. The growth path to meet this EMP requirement is shown below in Attachment 1 (*NJ Smooth Path to 17GW),* which shows a consistent increase to the solar construction pace of 5 MW/month each year, will achieve this goal, i.e., 35 MW/month in 2020, 40 MW/month in 2021, 45 MW/month in 2022, etc..

Using these annual capacity guidelines, the BPU should set total capacity amounts for net metered projects and preferred site projects over a three-year period, and open space grid projects on an annual basis. These capacity limits will contribute to ratepayer protection, while ensuring a growth line to meet EMP solar goals. To further protect ratepayers, the incentive values should be reset every three years to track costs and markets using a collaborative stakeholder process.

4) **Ensure reasonable and non-discriminatory accounting of the cost cap**

The solar goal is a critical component to the BPU's and the Governor's vision and mandate for a clean energy future in New Jersey. As the annual new solar construction requirements climb, it is important that the BPU stay under the cost cap required by the Clean Energy Act to protect ratepayers. However, it is also necessary that the BPU carefully consider all the costs and the direct electric ratepayer benefits in its cost cap calculations. Not including these benefits would be unfair and discriminatory against solar energy.

With respect to benefits, solar energy (and other renewable generation) provides several benefits which should be recognized in addition to those in the Cadmus analysis:

- Merit order benefits for both wholesale energy and capacity prices; wholesale power prices borne by all ratepayers would be higher in the absence of renewable energy generation and these benefits should be incorporated into the calculations. These benefits are required for energy efficiency cost-benefit analysis as provided for in the BPU's recent energy efficiency Order; it would be discriminatory to not recognize these same benefits for solar energy.

- Behind-the-meter solar installations provide cost savings to those customers.

- All renewable generation provides hedge value against the volatility of fossil fuel prices.

These and other benefits must be considered in order to perform a full and fair cost cap calculation.

The denominator in the cost cap calculation should include all costs for electricity, inclusive of all supply, delivery, utility, third-party supplier, and RPS incentive charges. Furthermore, all renewable PPA payments, behind-the-meter solar self-own costs, and electricity cogeneration costs should be included in these calculations.

The NJSBA provided detailed analysis in its comments on January 31, 2020 to the BPU that present a reasonably calculated cost cap. This analysis and approach should be utilized to analyze cost cap issues in this matter.

We appreciate the opportunity to provide input into the design of the Solar Successor Program. Public schools in New Jersey have been an active participant in the development of the solar market in New Jersey. We want to ensure the robust participation of public schools will continue, bringing the many benefits of solar to our students and faculty, our community, taxpayers, and the State.

ATTACHMENT 1

New Jersey 17GW Solar by 2035

Gabel Associates

3/20/2020

Calendar Year	Year End Installed Solar GW	Monthly Build MW/Month	Annual Build MW/Year
2019	3.1		
2020	3.5	35	420
2021	4.0	40	480
2022	4.5	45	540
2023	5.1	50	600
2024	5.8	55	660
2025	6.5	60	720
2026	7.3	65	780
2027	8.1	70	840
2028	9.0	75	900
2029	10.0	80	960
2030	11.0	85	1020
2031	12.1	90	1080
2032	13.2	95	1140
2033	14.4	100	1200
2034	15.7	105	1260
2035	17.0	110	1320

Comments of the New Jersey Solar Energy Coalition
Successor Program and Capstone Modeling
Docket No. QO20020184
September 8, 2020.

The New Jersey Solar Energy Coalition appreciates the opportunity to provide written comments on the Successor Program and Capstone Modeling. We commend the board staff for establishing this stakeholder forum. We look forward to our continuing participation in the forthcoming workshops in the weeks and months ahead to the development of the more detailed elements of the successor program.

New Jersey Solar Energy Coalition is a broad coalition comprised of New Jersey solar developers active in all market segments, solar financing functions, engineering, accounting, legal, and renewable energy credit trading firms employing thousands throughout New Jersey.

Overarching Comments Policy

The following areas are deemed critical to the success of the Successor Program and Capstone Modeling effort:

- In our opinion, total compensation model is best described as a "policy targeted" fixed incentive program that is re-adjusted for new project applications on a preset three year rolling basis. While the three year adjustments will be driven by "index changes" reflected in material, labor, financing, inflation, and other broad cost influencers, we would also recommend that the board exercise its authority to make annual adjustments should any market segment fail to support the policy goals of the program. We believe that a "fixed" incentive structure will result in the highest level of investor confidence thereby resulting in the lowest project financing costs achievable, and regular adjustments every thirty six months will ensure that the total compensation paid is regularly "trued up" to current cost and revenue data protecting ratepayers. The three year review should be streamlined to the extent possible to evaluate a preset number of parameters and be the subject to an administratively set hearing process in order to consider input from all stakeholders. Naturally, any changes would then only be reflected in subsequently approved applications thereby preserving legacy successor project financials.

- We believe that the Massachusetts SMART program design properly sets total compensation levels for both behind the meter facilities and standalone facilities. We also observe that this incentive model may take time to fully implement, particularly as it relates to standalone grid facilities subject to a new solicitation process. We look forward to the workshops that have been offered as a collaborative means to develop the details of the program. In the interim period, the TREC type "fixed incentive" structure should be carried forward, with the on-going workshops charged with further successor program development and policy refinements that can be then folded into the program as appropriate going forward.
- The incorporation of "adders" and "subtractors" will further make clear to the solar development community state policy objectives and pave the way for coupled battery storage incentives and other important system enhancements.
- The concept of a competitive bid solicitation should be restricted to all *ground mounted grid connected projects* grouped by size. Large grid connected rooftop projects, "net metered" community solar projects irrespective of interconnection voltage, and all "net metered" behind the meter projects, however, should follow the administrative blueprint of the Massachusetts SMART "behind the meter" administratively set incentives.
- The three years review period will also provide an opportunity to include new technologies and assign appropriate factors as may be required for new market segments.
- Incorporating out-of-state grid connected utility scale projects into the New Jersey Solar Clean Energy Program in a competitive process is completely unworkable due to the high cost of project development in New Jersey when compared to other PJM states. It is, however, appropriate to permit out-of-state solar projects to sell their Class I production attributes to New Jersey compliance buyers consistent with current practice for other out-of-state Class I generators.
- The large scale grid connected solicitation process will very likely take time to fully develop, therefore, it is recommended that the administratively set incentive "net metered" program move forward first, independently in order to adopt these important changes in the earliest possible timeframes.
- Finally, we have identified a number of inputs to the Capstone modeling inputs that are inconsistent with our members' direct cost and system performance experience. We have identified these modeling gaps at the end of this document and our members are prepared to provide full documentation to support any and all of these inputs upon request.

While many of the questions answered below will expand upon these issues and offer program "enhancement" proposals, the overall success of the program lies in resolving these overarching issues collaboratively at the earliest possible opportunity.

Topic 1: Recommended Incentive Structure Design

Based on stakeholder engagement to date, Cadmus presents three incentive "types" in the draft Capstone Report that could be used to inform the design of the Successor Program (see section 3.3, p. 16 – 25):

- Total Compensation: similar to a contract-for-differences model, a total compensation incentive structure calculates all the revenue streams generated by a representative project to arrive at a complementary performance-based incentive amount that may change over time as revenues change to achieve an administratively determined investment target. The incentive value is added onto these revenues to reach a total fixed compensation value.

- Fixed Incentive: a fixed incentive structure is one in which the value of the performance-based incentive is fixed over time, similar to the current Transition Incentive Program.

- Market-Based RECs with Floor: a market-based REC is an incentive that varies over time above a pre-defined floor price, based on the supply of RECs produced by eligible solar projects, and the demand set by the RPS.

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively-set incentives for smaller projects.

a. Do you agree with this recommendation? Why or why not?

Yes, a bifurcated incentive structure would appropriately compensate utility scale "standalone" projects in order to competitively account for economies of scale. Net metered projects compensated on a "fixed" incentive structure basis set administratively would appear the best option available in order to achieve the closest incentive alignment with specific project needs minimizing overall ratepayer costs. Resetting these administratively set incentives on a regular basis would achieve the benefits of a contract for differences model without the enormous administrative undertaking (as Massachusetts has recognized) of continuously making administrative changes to incentive levels for thousands of net metered projects across the landscape of all EDC tariffs.

b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

Non-net metered ground mounted grid connected projects should be considered separately and administered exclusively under a framework of competitive solicitations. These projects can be appropriately grouped as Massachusetts SMART "standalone" projects into two distinct

segments: under 10 MWs under a "standard offer" scenario, and 10 MWs and above under an open solicitation subject to a number of structural recommendations covered below. We would further recommend that large-scale grid based, non-net metered ***rooftop installations*** be considered for an administratively set incentive as a preferred siting segment factored appropriately inasmuch as these projects are unique and one off in scope.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

In our opinion ***all*** net metered projects would be subject to administratively set incentives, as Massachusetts SMART "net metered" projects. Therefore, a competitive solicitation for a utility scale "standalone" projects grouped by size as previously recommended would not need to resolve differences between wholesale and retail values.

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

Yes.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

Not Applicable.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

As utility scale grid connected projects, subsection (t) projects on landfills and Brownfields should receive incremental "adder" incentives as a preferred site in order to cover the incremental costs associated with these more expensive installations.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

Not applicable.

2) If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

The successor program should be broadly re-evaluated every three years in order to review updated project installation costs by segment, revising factors as necessary and reevaluating other cost and

revenue streams appropriately. Significant exogenous cost/revenue changes that create dysfunctional market distortions, however, should be reflected in new projects annually at the mid-year point, with due consideration provided to long lead time projects. This annual review will also present an opportunity to review ***new technologies*** for appropriately factored inclusion into the program. The review process should be streamlined to the extent possible to evaluate a preset number of parameters and be the subject to an administrative hearing process in order to consider input from all stakeholders. Naturally, any "topline" changes to the total compensation program would then only be reflected in subsequently approved applications preserving legacy project financials.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

The current market segmentation under the TREC program provides sufficient differentiation for installation types through appropriate segmentation of market products. In order to refine the policy objectives appropriately, however, consideration should be given to a more expansive matrix of factor "adders" as detailed below (Massachusetts SMART model):

Location Based Factors	*Off-Taker Factors*	*Energy Storage Factors*	*Other*
Dual Use Agricultural	Residential	Storage + PV (formula driven)	Solar Tracking
Brownfields	Community Solar		
Landfills	LMI Community Solar		
Floating Solar	Public Entities		
Solar Canopies	Low Income Residential		
Building Mounted			

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

Under a fixed compensation program, every three years installation costs would be reviewed, and topline incentive levels would be adjusted accordingly. This process would preserve fixed incentive levels for then "legacy" successor projects while aligning successive tranches with reduced or increased ratepayer costs, as warranted.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

We believe that the 15-year qualification life is adequate and should be set as a standard for all administratively set incentives. While we have not reviewed the economic basis for the reduction to 10-years for direct owned residential projects, we are of the opinion that the eligibility period should be a universal constant irrespective of market segment for administratively set incentives.

3) NJBPU were to implement incentives based on a competitive solicitation:

a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

While price should be considered a major factor in the evaluation criteria, it is clear that subsection (t) and other preferred project sites should receive some type of factor "adder" in order to provide reasonable compensation for the incremental cost of developing projects on challenged sites. Clearly, only New Jersey sites connected to the distribution, sub-transmission or transmission system should be permitted to participate in the competitive process.

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

The bundled incentive structure is fair, is more easily financed would result in less price and risk to ratepayers.

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single-clearing price system.

A workable scenario might first involve the board's setting of a maximum bid value, then setting the total solicitation size in MW's to be procured within the sized differentiated groupings described herein, and then letting the market set the total compensation incentive under a single clearing price "Dutch" auction. Dutch auctions lead to more aggressive bidding because the nature of the auction process means the bidder is protected from bidding a price that is too high. The Dutch auction model is extensively used by government agencies for public offerings of T bills, notes, bonds, and other securities.

d. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

Yes, reasonable bandwidths should be administratively set along with the size and scope of the solicitation.

e. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of

"stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

The board should set the size of the solicitation in accordance with its policy goal of developing grid scale projects up to pre-set segment of the solar RPS within any given energy year. Any unused capacity remaining, if any, could then be added to the ensuing solicitation in the next energy year.

f. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

In-state cost differences associated with the higher incremental cost of preferred siting should be handled through incentive factoring or "adders." There is no reasonable process, however, that can even begin to create a level competitive playing field between PJM states. Individual state tax policy, land valuations, labor costs, and other variables simply cannot be equitably resolved.

g. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

Yes.

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

Clearly, the certainty of EDC contracts would bolster investor confidence and reduce financing costs. However, the cumulative impact of these contracts on the EDC balance sheets could create a host of other problems associated with skewing the debt / equity ratio maintained by utilities then creating higher ratepayer utility costs. We suggest that these incentives might better be handled through the development of a non-by passable wires charge that can be passed through as an expense. Naturally, this approach would likely require state enabling legislation.

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

In order to pre-qualify bidders, the Board should require that all bidders show evidence of prior municipal zoning approval, site control, and completion of both the PJM required Feasibility Study and System Impact Studies. Evidence of these important and costly milestones would appear to preclude the requirement of also posting escrow payments beyond the current statutory

requirements. Clearly, the size and scope of projects bidding into the competitive solicitation would require longer maturity requirements than smaller net metered administratively set projects.

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.

a. Generally, how can this flexibility be incorporated into the design of the Successor Program?

Every three years during the reevaluation period, new technologies can be introduced in the context of new "factored" market segments as may be appropriate, and changing market circumstances can be integrated into the overall program at that time as well.

b. How should change in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

Future changes in federal policies should be incorporated into the incentive calculations as soon as practicable for future projects based upon a date certain. Previously approved projects were financed on the basis of federal policies in existence at the time and these incentives should be locked at those levels. Otherwise, the resulting lender uncertainty will further drive up financing costs contrary to the interests of ratepayers.

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

See above, substantial changes in the capacity market and other regulatory structures should be factored into the prospective incentive structure based upon a date certain that recognizes the needs of long lead time project development.

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

No, other than the application of Class I renewable energy credits to out-of-state projects, there would appear no reason to create additional incentives in order to create even more out-of-state jobs at New Jersey ratepayer expense.

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

No. Out-of-state utility scale solar resources should only be permitted to satisfy New Jersey's requirement for Class I renewable energy credits. The creation of any additional solar incentives to participate will simply shift New Jersey clean energy jobs to Western PJM states that have far lower cost profiles for solar project development. Successor program utility scale solicitations

should be open to New Jersey sited projects only, connected to a New Jersey EDC facility at any voltage level.

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

Providing out-of-state utility scale projects with class I renewable energy credits toward New Jersey's class I goals should be the only financial support provided to out-of-state PJM solar projects. They should not be provided access to any competitive solicitation with additional incentives for projects to be constructed in New Jersey. Eligibility to the New Jersey program should continue to be based upon an "in-state direct connection" to a New Jersey EDC's, distribution, sub-transmission, or transmission system.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

Not applicable.

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

Not applicable.

Topic 2: Modeling

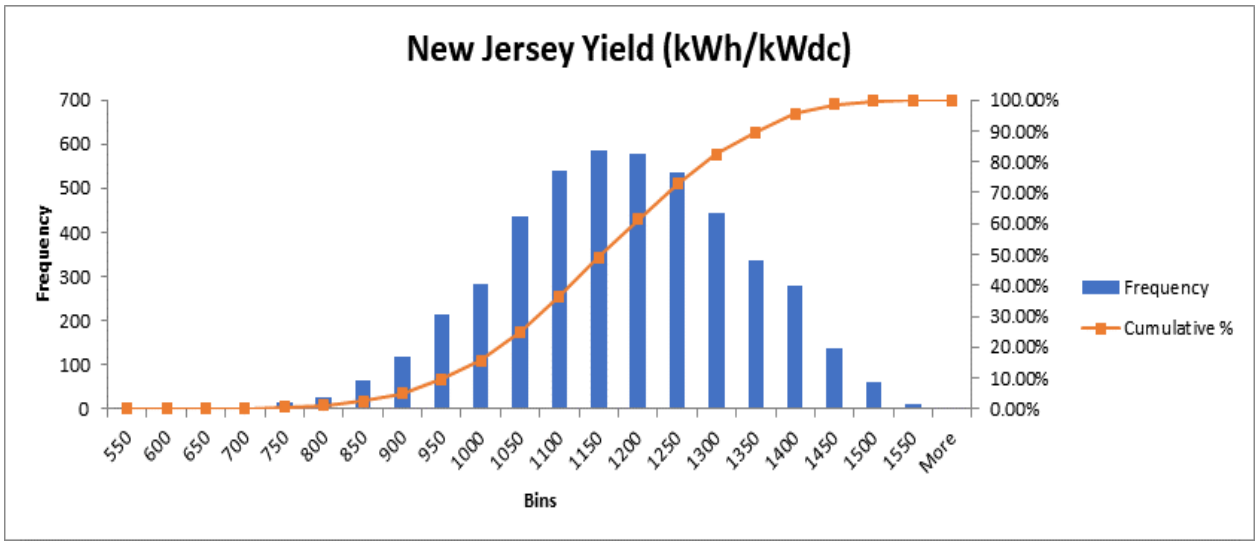
Overarching Comments Modeling Metrics

If all of New Jersey's current solar projects were individually mapped to the inputs required of the Capstone model (and it were even possible to do so), we would likely see that each of the required inputs could be "curve-fit" into a series of normal distribution functions with varying standard deviations. The Capstone model falls short, not in the comprehensive nature of its inclusion of varying and needed data, but in its inability to incorporate this uncertainty into the modeling outputs in order to provide more realistic "real world" projections. Clearly, convolving a series of arguably accurate data points together in the modeling magnifies inaccuracies. While there are a number of software products that can incorporate distribution modeling for major inputs such as installed costs, we would recommend at this point in the process that installed cost modeling be increased to the 70th percentile to better reflect the fact that the New Jersey solar market has been picked over a number of times and that new installations are far more likely to be at a higher installed cost than legacy installations.

We hope that the workshop process going forward can incorporate "uncertainty" modeling as a more accurate means of reflecting "real world" projections into the incentive modeling calculations.

The following metrics reflect NJSEC member input to the modeling assumptions deemed critical to the ultimate success of the Successor Program and Capstone Modeling effort:

- The solar industry uniformly calculates project internal rate of return on an unlevered basis. We recommend, therefore, that the modeling output reflect and unlevered rate of return of between 7.5% and 8%.
- The assumption associated with the flat 15% discount on all bill credits is simply not reflective of experientially driven customer expectations of New Jersey's current solar marketplace. Over the past decade, market segments have developed around widely varying customer savings expectations. Most residential customers expect to save in the 20%-25% range with escalators, commercial and industrial customers look for solid 25% reductions with minimal (1%) or no escalators, and schools and other public facilities demand far higher discounts. We recommend therefore that residential discounts be modeled in the 20% to 25% range and that commercial and industrial discounts be modeled at 25%.
- Escalation rates for residential projects can reasonably be set at 2.5%. C&I projects, however, rarely include significant escalators above 1%, and should be modeled accordingly.
- Residential modeling reflecting PSE&G tariff rates, should also be modeled at JCP&L residential tariff rates, in particular, inasmuch as they are substantially lower.
- System performance modeling is high by about 10%. Actual performance is more in the 1150 MWh/MW range than the 1250 MWh/MW range used in the Cadmus modeling. NJSEC member actual system performance data is included below:



- Capital costs: residential panel prices are currently running between $0.40 and $0.45 per watt, while C&I panel prices are running between $0.30 and $0.35 per watt.
- Inverter costs for residential installations are running between $0.20 and $0.25 per watt and C&I inverter costs should be at least $0.15 per watt all inverters now required to include module level rapid shutdown at these higher prices.
- ITC should be set to 22%.
- Property tax modeling: No consideration was provided for taxable assessment for net metered ground mounted footings, net metered roof lease / ground lease valuation in assessments, nor PILOT agreements that may be required for large net metered ground

mounted arrays. New Jersey municipalities are hard pressed to increase local property taxes and every opportunity is explored to tax solar installations as a source of incremental revenue. Current law exempts business personal property (panels and invertors) but ground installed footings, fixtures, and lease payments are subject to municipal property tax assessment.

The modeling conducted by Cadmus and described in the draft Capstone Report was largely informed by the assumptions used in the Transition Incentive program modeling, updated cost data from projects in the SRP, and subsequent stakeholder engagement such as the March 2020 Successor Program cost survey. Staff is interested in stakeholder feedback on Cadmus' assumptions and modeling choices. Staff has identified a number of specific questions below, but encourages stakeholders to share their assessment of the model and modeling assumptions beyond the focus of these questions.

7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?
Yes.

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

> ***Modeling Note**: While the reduction of demand charges may not be certain or readily quantifiable with standalone PV, integrating energy storage systems should improve the ability to manage demand charges (e.g., by actively "shaving" a facility's peak demand). We welcome feedback from stakeholders regarding their experiences in incorporating demand-charge reductions in their modeling for PV projects and as part of their discussions with prospective customers, particularly in light of energy storage.*

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

> ***Modeling Note**: Given the level of EIS' "aged" SEP for the fleet relative to SEPs derived in SAM for the Successor Program Model, it may be that SAM modeling has an overall energy degradation rate higher than assumed, or additional adjustments should be made to SAM default losses, which would reduce the initial SEPs. A reduction in starting SEPs and/or an increased energy degradation rate would reduce overall energy production and suggests, therefore, that higher incentives would be needed.*

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

Unlevered IRR should form the basis of evaluation.

13) Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

Respectfully submitted,

Fred DeSanti, P.E.
Executive Director, New Jersey Solar Energy Coalition

September 8, 2020

New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, NJ 08625-0350

Submitted via email: *board.secretary@bpu.nj.gov*

Re: PosiGen Comments on Successor Program Capstone Report Docket No. QO20020184

To Whom It May Concern:

PosiGen Solar ("PosiGen") is pleased to submit these comments in response to the Successor Program Capstone Report Staff Request for Comments.

First, PosiGen would like to thank the BPU and Cadmus Group, LLC for their continuing hard work and dedication to help New Jersey take the next step towards NJBPU's goal of implementing a durable solar Successor Program that meets the targets set forth by the Clean Energy Act of 2018 ("CEA" or "Act") and the Governor's Energy Master Plan. PosiGen particularly appreciates the opportunity to provide input on the Capstone Report to help ensure that the final result meets the commitments set forth by the Act and Master Plan to make environmental and energy justice a cornerstone of the successor clean energy program, and to further ensure that EJ/lower income ratepayers can fully access the benefits of these programs.

Introduction

PosiGen offers a 20-year fixed monthly price solar lease with included energy efficiency upgrades and a year one savings guarantee to 100% of solar-feasible homeowners, regardless of income or credit score.[1] We have an exceptional and groundbreaking track record of rapidly scaling an equitable clean energy solution for EJ/LI ratepayers in two other markets to date and are poised to rapidly scale our solution in New Jersey with the necessary incentive structure design. Although PosiGen's model is unique, we are confident that an appropriate incentive structure that provides adequate pricing signals and industry confidence will also attract significant EJ/LI market competition in New Jersey.

[1] Incentive structures to date have limited PosiGen to serving only homeowners living in 1-4 unit buildings, but we would welcome the opportunity for additional dedicated incentives to enable us to serve renter ratepayers with place-based energy so that they might access the increased resiliency and energy efficiency benefits that we can deliver.

PosiGen has taken the State of Louisiana to 1st in the nation in low income solar deployment,[2]a feat made more remarkable given the fact that Louisiana is now 50th in the nation in distributed solar policy.[3] The company was able to monetize a generous state incentive at our founding in New Orleans 8 years ago to not only finance rooftop solar for 100% of homeowners, but to include an exceptionally cost- and demand reduction- effective energy audit and upgrade for our Louisiana customers, resulting in a net positive year one financial benefit to our customers of more than $500.[4]

Through PosiGen's Solar for All partnership with the State of Connecticut's Green Bank, which includes the same energy audit and efficiency upgrade and even greater net customer savings,[5] we were able to take that state to beyond "solar parity" in just 4 years, meaning that lower income ratepayers are now more likely to have rooftop solar that higher income ones.[6] Even more groundbreaking, this unique public-private partnership has delivered exceptional solar adoption to communities of color in Connecticut, utilizing a well designed incentive structure to attract generous private investment into otherwise traditionally underserved communities.[7] Specifically, a study of our Connecticut portfolio by the Green Bank found that PosiGen has more projects per home in majority Black (1275%), Hispanic (408%) and No Majority race (427%) neighborhoods than in majority White neighborhoods.[8]

As noted by Green Bank President and CEO Bryan Garcia: "In 2015, when we realized that all homeowners in Connecticut did not have access to the benefits of the clean energy economy, our mission compelled us to act. This study confirms that the response to our programs in underserved communities of color has been even more positive than we anticipated."[9]

PosiGen strongly recommends that BPU and Cadmus consult with the Connecticut Green Bank and their nonprofit spinoff Inclusive Prosperity Capital on the best practice design of their successful LI incentive, which not only exceeded the challenge but was designed to step down in value upon market success to ensure the wise administration of ratepayer and taxpayer dollars.

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[2] https://emp.lbl.gov/projects/solar-demographics-trends-and-analysis
[3] https://www.solarpowerrocks.com/louisiana/
[4] PosiGen will provide internal customer savings data to BPU pursuant to appropriate Non-Disclosure Agreement executions.
[5] Same. Note that PosiGen harvests accessible utility energy efficiency incentives to the maximum extent practicable to ensure the maximum net energy benefit to our customers.
[6] https://ctgreenbank.com/sharing-solar-benefits-in-communities-of-color/
[7] Id.
[8] Id.
[9] Id.

Recommended Elevated EJ/LI Incentive Structure Design

New Jersey is at a once-in-a-lifetime crossroads when it comes to investing in meaningful, scalable solutions to energy poverty. Given there is a cost-effective and transformational incentive model available for utilization, PosiGen strongly recommends that BPU use this successor incentive proceeding to investigate and clearly commit to a similar incentive structure to ensure rapid achievement of EJ/LI solar targets in the coming years. The ongoing pandemic-driven economic disaster coupled with the growing climate resiliency need has only added to the equity urgency for EJ/LI ratepayers given that they were largely denied access to the benefits of the prior solar incentive program in New Jersey. One additional hard truth that newly merits BPU acknowledgement and analysis is that the number of severely energy burdened homeowners and renters in the state is likely to expand significantly as a result of the pandemic and economic retraction, making a clear commitment to meeting the need more urgent than ever before.

To ensure that low-income and environmental justice communities have access to all programs in business, residential, and multifamily sectors and that programs are done equitably in this first round, PosiGen suggests that the BPU instate the following incentive structure:

- Create a fixed and dedicated EJ/LI solar incentive that is at a minimum 200% of the market rate incentive[10]
- Ensure that the income parameters for the EJ/LI qualified incentive are designed to match other government energy aid programs, in particular energy efficiency and energy bill assistance program qualifications.
- As part of the enhanced incentive, require an energy audit and provider participation in available utility energy efficiency programs to ensure baseline demand assessment, air quality testing and building envelope sealing
- Provide full retail net metering for EJ/LI ratepayers participating in the program to ensure simplicity of consumer consideration of value proposition and net positive financial impacts
- Design an incentive stepdown program that is tied to clearly identified EJ/LI deliverables based upon number of EJ/LI ratepayers served and EJ/LI megawatts installed.
- Utilize market rate incentive criteria for EJ/LI solar providers with the sole addition of enhanced consumer protection best practices as offered by the Connecticut Green Bank program.[11]

[10] Note that Connecticut's initial LMI incentive was 3x the market rate incentive. PosiGen recommends a per-unit model straw poll of existing solar providers to determine how much enhanced incentive is necessary to ensure robust market participation, particularly in light of the additional cost and time investment necessitated by the energy audit and efficiency upgrade requirement.

[11] EJ/LI incentives should be exclusively committed to serving ratepayers, and not be used as a financing vehicle for additional social benefits such as job training. Such programs are obviously laudatory but

- Utilize income verification protocols similar to the best practices as offered by the Connecticut Green Bank program, to include acceptance of both federal and state government assistance program documentation.
- For select EJ designated communities, utilize census tract income criteria to streamline and enhance solar adoption to recognize the urgent social justice imperative to more rapidly scale resiliency solutions
- Create a companion dedicated elevated place-based storage incentive for EJ/LI ratepayers, in particular for elderly and health-impaired ratepayers, in recognition of the urgent need to provide basic energy services in the event of a grid-failure.

PosiGen again thanks BPU and Cadmus for the opportunity to submit these comments and would welcome the opportunity to provide additional information and answer questions regarding EJ/LI solar solutions for New Jersey.

Sincerely yours,

Elizabeth Galante – electronic signature

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would be far better served by already existing and robust market rate incentives and providers, who enjoy far greater profit margins than price-constrained EJ/LI providers. Anything that adds costs, bureaucracy or time delays to scaling EJ/LI service would be a disservice to this long-underserved population.

Joseph A. Shea, Jr.
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PSEG Services Corporation

September 8, 2020

VIA ELECTRONIC DELIVERY - BOARD.SECRETARY@BPU.NJ.GOV

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 S. Clinton Avenue, 9th Floor
P.O. Box 350
Trenton, NJ 08625-0350

Re: Successor Program Capstone Report - Docket No. QO20020184

Dear Secretary Camacho-Welch:

Public Service Enterprise Group, Inc. ("PSEG" or the "Company"), on behalf of affiliates Public Service Electric and Gas Company ("PSE&G") and PSEG Power LLC ("PSEG Power"), appreciates the opportunity to provide input on the New Jersey Solar Transition - Successor Program Capstone Report - Staff Request for Comments ("Request for Comments") in the referenced Docket.

PSEG strongly supports and applauds the policy objectives of the State of New Jersey and Governor Murphy – to significantly reduce greenhouse gas emissions with the goal of 50% clean energy by 2030 and 100% clean energy by 2050. These policy objectives are necessary to address climate change, perhaps the most significant long-term threat to the State of New Jersey.

PSEG has a long history of partnering with the state and aligning its interests with those of New Jersey. It is in this spirit of partnership that PSEG offers these comments. We commend the Board for soliciting stakeholder input and putting the solar market on a path to a Successor Program that cost effectively achieves the State's clean energy goals.

As an initial matter, the Company would like to reiterate its prior comments with respect to the design of the State's Solar Successor program: the clean energy goals put forth in the State's Energy Master Plan are significant and challenging. The participation of the New Jersey electric distribution companies are essential to meeting the goal of installing 5.2 GW of solar by 2025, 12.2 GW by 2030, and 17.2 GW by 2035. To meet these objectives, the State will need to install over 900 MW/year, almost triple what the market has delivered over the past few years. Given the substantial increase in solar targets, it is critical that the Board develop a cost-effective approach to compensating solar development. New Jersey has extremely high costs for solar, both

in terms of $/MWhr and total program costs. Costs need to meaningfully come down if we are to meet these higher goals without burdening the customer.

The only realistic way for NJ to achieve its clean energy goals is to maximize all proven approaches to solar development in New Jersey including bringing the State's electric distribution companies into the market to grow the grid connected solar sector. Currently, only about 20% of the State's solar capacity is grid connected, which is by far the lowest percentage among the leading solar states in the country. In most leading states, between 50-80% of solar generating capacity is grid connected. This focus away from more economic, larger scale, grid connected solar has contributed to the higher cost of Solar in NJ, which all customers are bearing. The State can easily increase its grid connected capacity by working with its electric utilities to develop, own and operate larger, grid connected solar facilities. Fortunately, PSE&G's Solar 4 All® Program is precisely the model by which the State can achieve its solar energy goals.

PSE&G's Solar 4 All Program® targets landfill and brownfield sites for development, sites that are generally difficult to develop for the private market due to the additional challenges of meeting New Jersey Department of Environmental Protection requirements and local permitting and development requirements. Through the Solar 4 All® program, PSE&G has become a national leader in developing these difficult sites, with over 40% of all landfill/ brownfield capacity in the State. This model can be expanded to allow utilities to build and own solar on additional unproductive landfill and brownfield properties, which would be an underserved market segment without PSE&G's involvement.

Utilities can also assist in the local government/public market sector to develop projects in situations where a local government has not been able to participate due to cost constraints or other barriers that have left them out of the private market. Working with these customers can translate into lower tax burdens for all of their constituents. In addition, utilities stand ready to implement programs that will provide crucial assistance to low and moderate income residents, particularly, as noted below, those residents disproportionately impacted by environmental justice concerns.

For both of these sectors (local government/public market and low and moderate income), the Board can and should establish a capacity carve out for utility ownership and operation, which, given the aggressive goals the State has set for solar energy, would still leaving adequate capacity for the rest of the market.

Finally, PSEG continues to believe that the State's utilities can be a valued participant in the community solar market. And while we understand that the Board has chosen to exclude utilities from participating in the community solar pilot program at this juncture, we welcome the opportunity to work with the Board and other stakeholders in exploring a more inclusive role for the utilities beyond the pilot program.

Beyond these direct roles for utilities in the solar market, PSE&G offers additional suggestions for the successor solar program:

- We believe that the fixed incentive model described in the draft Capstone report is the superior approach. The fixed incentive model has many advantages: it is consistent with

the current transition market approach and will therefore make the changeover easier for market participants. The fixed incentive model balances the risks and benefits of solar energy between customers and solar developers/owners, while providing price certainty to developers. Price certainty for developers will be important to help reduce the cost to customers. Lastly, the fixed incentive is easy to understand and easy to implement.

- We believe the fixed incentive model is superior to the total compensation option discussed in the Capstone report for several reasons. One major concern with the total compensation option is that all price risk shifts to customers/ratepayers, with long term power purchase agreements (PPAs) that utilities would be required to sign. Prior PPA-type models in New Jersey (and other states) have left customers with expensive obligations for out-of-market payments for years. The Board should not repeat this mistake. Additionally, this model would be confusing to customers with behind the meter projects, particularly residential customers, as the Board would need to design some type of structure to correct for the net metering benefits customers with behind the meter systems currently receive. Several residential solar developers highlighted this concern in their oral comments.

- To the extent possible, we believe that a single solar incentive should be available to all solar projects regardless of solar facility type, location, and size to provide the least cost solution for customers and minimize the burden of administering the incentive.

PSEG Response to Specific BPU Questions

3) If NJBPU were to implement incentives based on a competitive solicitation:

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

PSEG RESPONSE:

In general, the successor solar incentive program should incorporate a fixed solar incentive that should be determined in an open, competitive solicitation. For smaller solar systems, such as residential and small commercial projects, an administratively-determined incentive at the outset is acceptable. Thereafter, the Board should, to the extent possible, investigate competitive alternatives to an administratively-determined incentive.

The EDCs should not be required to enter into long term power purchase agreements with solar project developers. If not carefully structured, the cost obligations under the PPAs might be recorded as debt as required by lease accounting treatment under generally accepted accounting principles and/or be imputed as debt by the credit rating agencies. That would have negative

implications for the financial health of the EDCs and would ultimately raise costs to customers. In addition to this risk, the EDCs would want the highest assurance of recovery of these pass-through costs. The longer the term of the contract, the higher the risk that in the future it could be "out of the market" and therefore ongoing certainty of recovery would be critical to the EDCs (i.e., non-bypassable charge).

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

PSEG RESPONSE:

To discourage speculative project bids, the successor incentive program should include a requirement that each grid-connected solar project shall have completed a PJM Facility Study Agreement to participate in a competitive solicitation or to be considered for an administratively-set incentive program. The PJM Facility Study Agreement process is set forth in Attachment D of the PJM Manual 14A, which can be found at:
https://learn.pjm.com/three-priorities/planning-for-the-future/~/media/52AD707F3AED43D98518963504C60130.ashx

* * *

Once again, PSEG commends the Board for conducting this comprehensive stakeholder proceeding and appreciates the opportunity to submit these comments. We look forward to continuing to work with the Board and all stakeholders on these important initiatives to cost-effectively achieve the Governor's and the Legislature's clean energy goals. We thank the Board for its consideration of our submission.

Respectfully submitted,

Joseph A. Shea, Jr.

State of New Jersey
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PHIL MURPHY
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STEFANIE A. BRAND
Director

September 8, 2020

By Electronic Mail (board.secretary@bpu.nj.gov)
Honorable Aida Camacho-Welch, Secretary
NJ Board of Public Utilities
44 South Clinton Avenue, 9th Floor
P.O. Box 350
Trenton, NJ 08625-0350

Re: In the Matter of Solar Successor Incentive Program Pursuant to P.L. 2018, c. 17 – Successor Program Capstone Report Staff Request for Comments

BPU Docket No. QO20020184

Dear Secretary Camacho-Welch:

Please accept for filing the attached comments being submitted on behalf of the New Jersey Division of Rate Counsel ("Rate Counsel") in connection with the above-referenced matter. These comments are being submitted electronically in accordance with the Board's August 21, 2020 Updated Notice in this matter. Copies of Rate Counsel's comments are being provided to all parties on the service list by electronic mail only.

Please acknowledge receipt of these comments.

Thank you for our consideration and attention to this matter.

Respectfully submitted,

STEFANIE A. BRAND
Director, Division of Rate Counsel

By: */s/ Sarah H. Steindel*
Sarah H. Steindel, Esq.
Assistant Deputy Rate Counsel

Enclosure

cc: solar.transitions@bpu.nj.gov
Paul E. Flanagan, BPU
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Scott Hunter, BPU
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Pamela Owen, DAG, ASC

STATE OF NEW JERSEY

BEFORE THE BOARD OF PUBLIC UTILITIES

In the Matter of Solar Transition Successor Incentive Program Pursuant to L. 2018, c. 17	**)** **)**	**Docket No. QO20020184**

COMMENTS OF THE NEW JERSEY DIVISON OF RATE COUNSEL ON SUCCESSOR PROGRAM CAPSTONE REPORT STAFF REQUEST FOR COMMENTS

September 8, 2020

Introduction

The Division of Rate Counsel ("Rate Counsel") thanks the Board of Public Utilities ("Board" or "BPU") for the opportunity to provide comments on the draft Capstone Report for New Jersey's next-generation Solar Successor program. The draft report was developed by Staff consultants Cadmus Group, LLC ("Cadmus") and presents preliminary findings regarding the incentive levels necessary to support continued robust solar development in New Jersey while lowering ratepayer costs.

The Solar Transition proceeding was initiated by the Clean Energy Act (P.L.2018, c.17) ("Act" or "CEA") which directs the Board to transition the solar market away from solar financing methods based on the use of Solar Renewable Energy Certificates ("SRECs") to a new program that will continue the efficient and orderly development of solar energy generation. Specifically, the Act requires the Board to adopt rules and regulations to close the SREC program to new applicants once solar generation reaches 5.1 percent of total retail sales (hereafter the "threshold"), and no later than June 1, 2021. N.J.S.A. 48:3-87(d)(3).

The CEA also directed the BPU to conduct a study on how to replace the SREC program. As outlined in the CEA, the legislature envisioned a modified program that will: (1) continually reduce the cost of achieving solar energy goals; (2) provide an orderly transition from the legacy program to a new or modified program; (3) periodically establish and update market based maximum incentive payment caps; (4) encourage and facilitate market-based cost recovery through long-term contracts and energy market sales; and (5) 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. N.J.S.A. 48:3-87(d)(3).

The BPU engaged Cadmus to conduct a lengthy, multi-step Solar Transition process that has been informed by extensive stakeholder input in multiple phases. This process has involved closing the SREC program ("Legacy SREC Program") to new entrants, designing and implementing a Solar Transition Incentive program, and developing a successor solar incentive mechanism ("Successor Program). The draft Capstone report with underlying modeling spreadsheets was released on August 11, 2020.[1] In addition, two stakeholder meetings were held. On August 17, 2020 a stakeholder workshop was held to provide a walkthrough and technical discussion of the System Advisor Model ("SAM") used in the development of financial incentives in the Successor Program.[2] A second stakeholder meeting was held on August 20, 2020 which also allowed for public comment on the Capstone report.[3]

Rate Counsel applauds the efforts of Staff and Cadmus. The draft Capstone report represents a thoroughly developed analysis of solar project characteristics that includes customer types, installation types, ownership, size, and Electric Distribution Company ("EDC") territory; and explores how differentiation impacts project economics and minimum incentives. Further, the entire study development process has allowed for continuous engagement and stakeholder participation. As outlined in the draft report, there have been several stakeholder meetings and workshops to acknowledge industry input and to discuss modeling assumptions, incentive design and potential policy pathways.

[1] Available at: https://njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-proceedings.
[2] Public Notice available at: https://www.nj.gov/bpu/pdf/publicnotice/Stakeholder%20Notice%20Successor%20Program%20-%208-4-20.pdf.
[3] Ibid.

Topic 1: Recommended Incentive Structure Design

Based on stakeholder engagement to date, the draft Capstone Report presents three incentive types that could be used to inform the design of the Successor Program.[4] These incentive types are:

- Total Compensation: similar to a contract-for-differences model, a total compensation incentive structure calculates all the revenue streams generated by a representative project to arrive at a complementary performance-based incentive amount that may change over time as revenues change to achieve an administratively determined investment target. The incentive value is added onto these revenues to reach a total fixed compensation value.

- Fixed Incentive: a fixed incentive structure is one in which the value of the performance-based incentive is fixed over time, similar to the current Transition Incentive Program.

- Market-Based RECs with Floor: a market-based REC is an incentive that varies over time above a pre-defined floor price, based on the supply of RECs produced by eligible solar projects, and the demand set by the RPS.[5]

The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively-set incentives for smaller projects. However, of these three options presented, Rate Counsel supports a modified version of the "Total Compensation" incentive structure, similar to the one being utilized in the Solar Massachusetts Renewable Target ("SMART") program. Rate Counsel recommends that the Total Compensation model be modified such that the financial incentives provided in the program are limited to environmental attributes only and do not include "all-in" energy, capacity and other attributes. Other revenues streams such as energy and capacity revenues should be determined by the market, with the project developer bearing the risk, not ratepayers. A program of this nature should operate in a fashion similar to the Long Term SREC

[4] Draft Capstone Report, pp. 16-25.
[5] NJBPU Notice, New Jersey Solar Transition Successor Program Capstone Report Staff Request for Comments, Docket No. QO20020184, August 11, 2020. p. 5.

contracting approach utilized by the Board for several years. However, rather than contracting for SRECs, the "modified" Total Compensation approach should contract for the total dollar amount needed by competing solar projects to make their projects profitable with current market conditions. As discussed in more detail below, while the "all-in approach used in the Massachusetts program may be appropriate in that jurisdiction, it does not make sense in New Jersey given the history and legal and regulatory context of this State's electricity and solar markets.

Rate Counsel notes that the "Total Compensation" approach as described in the Board's Notice and as recommended by Rate Counsel is not a true "contract for differences" model. A contract for differences would allow the incentive to fluctuate over the life of the project. As discussed in more detail below, the amount of the incentive for each project should be based on market conditions at the time the incentive is awarded, and then should remain fixed for the duration of the term of the incentive.

Rate Counsel believes that a Modified Total Compensation model will provide the necessary certainty needed by project developers, while at the same time, reduce costs borne by ratepayers. Such an approach will be performance based, i.e., based on actual electric generation, and acts as a consistent revenue stream for the generator. This type of structure also allows for flexibility to encourage or discourage project types through project adders and subtractors; or alternatively, the Board could consider separate solicitations to allow certain types of priority projects to only compete with one another for ratepayer financing. For instance, projects paired with battery storage could receive an adder to further incentivize this technology – or, alternatively, the Board could conduct a "solar/battery" only solicitation and choose from the least cost bids provided in this separate solicitation.

An important part of the Total Compensation model, whether it be from the Board's "all-in" approach or Rate Counsel's preferred modified "attributes only" approach is that prices will be set through a competitive bidding process. The Total Compensation model is the only incentive structure that will ensure the New Jersey solar program will move forward in a straightforward and transparent manner that produces efficiency gains that can be passed on directly to ratepayers. Rate Counsel continues to advocate for solar incentive programs that aggressively reduce ratepayers' financial burdens through competitive markets. Developing a program that promotes continued solar development at minimal ratepayer costs should be the primary goal of the successor program particularly as the New Jersey economy starts to rebuild in the aftermath of the current pandemic. Now is not the time to over burden households, businesses and industry with investment costs that are excessive and not market tested.

A market-based approach, like that envisioned by the modified total compensation structure, will help to eliminate the long-existing problem of over-compensated solar development in New Jersey. The Board must adopt a program that ends this over-incentivization through the use of competitive solicitations. Rate Counsel believes that this is the only option that can achieve the CEA's objective of replacing the current SREC program with one that will reduce costs to ratepayers.

The second incentive option, "Fixed Incentives" is similar in structure to that used in the current Transition Incentive Program. A fixed price for environmental attributes and other production associated values would be set administratively and paid to developers in addition to market revenues and avoided cost. As the Transition Incentive Program was being developed, Rate Counsel urged Staff to adopt a competitive process rather than an administratively determined fixed incentive structure. Incentive values determined by an administratively

determined fixed price are inefficient, and place far too much cost risk upon ratepayers. There is also the likelihood that such programs will significantly over-compensate solar development since there is no guarantee that the Board will have complete or contemporaneous information in order to set an appropriate incentive value. As evidenced throughout the proceeding in developing the Solar Transition Program, setting an appropriate solar incentive value can be a contentious and drawn out process since the solar industry will have strong incentives to see these compensation levels set as high as possible. Thus, any administratively determined incentive value will likely be incorrect, exposing ratepayers to the risk that incentives will be too high. The inefficiencies inherent in administratively-determined prices are highlighted in the draft Capstone Report:

> the primary issue with this type of incentive program is the difficulty regulators face in administratively determining the appropriate price level.
>
> …
>
> In response to striking an appropriate balance, regulators may need to hold frequent meetings to ensure prices are set at a suitable level, increasing the program's administrative and overall costs. Additionally, given this program type necessitates long-term contracts, the REC price is set for a long time period, hence lacking market-responsiveness.[6]

The third incentive option, "Market-Based RECs" appears to contemplate a structure with tradeable certificates, similar to the legacy SREC program. Rate Counsel cannot support this option because it would simply perpetuate the same problems that have arisen under the former legacy program and that the CEA seeks to address. Repeatedly, the Board or the Legislature has moved to lower Solar Alternative Compliance Payment ("SACP") values in order to moderate SREC prices to better reflect the ongoing cost efficiencies arising from solar installations. However, while SREC prices did decline, they failed to track the declining costs of solar creating

[6] Draft Capstone Report, p. 20.

a long trend of over-compensation to solar developers. In short, the legacy program generated considerable margins for the solar industry at New Jersey ratepayers' expense. Rate Counsel cannot support a Successor Program that is designed in any way similar to the Legacy SREC Program.

Further, the use of a tradeable REC- based program is inconsistent with the CEA which directs the Board to establish a successor program that supports solar development in an "efficient" and "orderly" fashion as defined in the CEA.[7] The CEA also directs the Board to control costs by using "competitive processes such as competitive procurement and long-term contracts," with the ultimate objective of "transform[ing] the renewable energy market into one that can move forward without subsidies." N.J.S.A. 48:3-87(d)(3). Neither an administratively determined incentive nor a program based on tradeable RECs is consistent with the very plain and clear intent of the CEA.

Responses to Board Staff Questions on Report

The remainder of Rate Counsel's comments are in response to the draft Capstone Report's questions outlined below.

1. **The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively-set incentives for smaller projects.**

   a. **Do you agree with this recommendation? Why or why not?**

   Response

Rate Counsel disagrees with the recommendation for a bifurcated incentive structure. As explained above, Rate Counsel does not support administratively set incentives for any projects. Incentive prices for all future solar development should be determined through a competitive

[7] N.J.S.A. 48:3-87(d)(3)

procurement process. Setting incentive prices through competitive solicitation is the only way to ensure the most recent changes in cost, performance and efficiency are reflected and the only way to protect ratepayers from risk.

In Massachusetts, the SMART Program is designed to procure solar generating capacity based on long-term, fixed-price contracts. SMART Program participants receive a fixed per kWh compensation that is separate from their electricity bill for a period of 10 or 20 years. A competitive request for proposals is held jointly by the Massachusetts distribution companies for projects between 1 and 5 MW. Each company solicits an amount of capacity proportional to its load share and the results of this competitive solicitation are used to establish a base compensation rate or clearing price for projects between 1 and 5 MW. For projects less than 1 MW, rates are set based on an index or "rate factor" that attempts to reflect the different costs of development for projects of different sizes. Incentives are available for 10 years for projects up to 25 kW; and 20 years for projects from 25 kW to 5 MW.

The SMART Program is made up of eight blocks with each block representing about 200 MW of capacity. As projects respond to the incentive rate offered, the capacity blocks are filled. Going forward, incentive payments decrease by a pre-determined amount for each block so that once a block reaches its maximum capacity within an EDC's service territory, future projects then become eligible for the rates offered in the next lower-priced block. Projects are awarded on a first-come, first-served basis. Most importantly, in the SMART Program the starting point for an incentive price is based on the least-cost, most-competitive projects, for all project sizes, which provides a strong financial signal for early adopters.

However, if the Board does adopt a bifurcated approach it needs to tie part of this approach to competitive market outcomes. For instance, the Board could elect to award projects

based on an as-bid basis and use the lowest offered bid in a competitive solicitation to set a standard offer price for additional projects, with a total installed project capacity cap. This standard offer price would exist for a one-year period or up to a time when newer competitive solicitations are held. If the Board selects this option, then the standard offer price needs to be set at a very aggressive level relative to offered competitive bids, and the total capacities eligible should be strictly limited. Otherwise, solar projects will have incentives to not participate in the competitive bidding process, sit on the fence, and hope for unnecessarily high prices to arise from limited bidding. Afterwards, these "fence-sitters" will be able to take advantage of the artificially high standard offer price. This is simply another form of market manipulation, like the various methods that have arisen over the past decade in the New Jersey SREC market, that will result in outcomes that over-compensate solar development at ratepayers' expense.

b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

Response

Rate Counsel does not agree with the recommendation for a bifurcated incentive structure. Please see Rate Counsel's comments to part 1(a) above and part 1(c) below. Rate Counsel recognizes that the CEA identifies some market segmentation of new programs to the extent these programs are needed. An incentive structure similar to that used for the SMART Program in Massachusetts will provide the flexibility to recognize the mandated segmentation in a straightforward and transparent manner. However, Rate Counsel cautions the Board not to overly segment the market and to set reasonable targets for segmentation that are consistent with prior experience. The Board has not been successful in the past in defining market segmentation goals, particularly with the long-term solar contracting program and utility-based programs.

Setting unreasonable segment targets could lead to unnecessarily high prices and shortfalls in reaching the Clean Energy Act's solar energy goals.

Further, as noted earlier, if the Board utilizes a bifurcated structure, then that structure must be based on competitive solicitations. Such a structure would use competitive prices in an initial solicitation and use those competitive prices to set a limited period/limited quantity standard offer. The Board needs to appreciate the difference between having a known standard offer available to projects versus an administratively determined price. A competitively-priced standard offer informed by a market solicitation is not the same as an administratively-set price determined by the regulator. Both provide the certainty needed for project development, yet one, the administratively determined price, is more likely to be set incorrectly and over-compensate solar energy development. Rate Counsel does not support the establishment of a bifurcated approach. However, if the Board is going to do this it must find a way to tie the bifurcated approach to the market to assure ratepayers benefits and to assure consistency with the CEA's mandate to meet the State's solar energy goals while minimizing burdens on ratepayers.

i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

Response

Rate Counsel does not agree with the recommendation for a bifurcated incentive structure. Please see Rate Counsel's comments to parts 1(a) and 1(b) above and part 1(c) below.

Further, as noted earlier, Rate Counsel does not support high degrees of market segmentation that treats solar projects differently. All solar projects need to be tested against the competitive market to achieve consistency with the express intent of the CEA.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

Response

Rate Counsel does not agree with the recommendation for a bifurcated incentive structure. Please see Rate Counsel's comments to parts 1(a) and 1(b) above and part 1(c) below. Also, Rate Counsel believes net metering subsidies will continue to have a distorting effect on the Successor Program. The Board recognized this issue in its Solar Transition Order by approving a lower Transition Renewable Energy Certificate ("TREC") factor for some net metered projects.[8] In the Massachusetts SMART Program, the uneven playing field that net metering creates is addressed by subtracting a "value of energy" ("VOE") component from a project's compensation. SMART Program customers who enroll in net metering receive an incentive rate that is calculated as the base compensation rate, plus any applicable adders, minus the VOE. The VOE is established by the Department of Energy Resources and is equal to the three-year average of the basic service rate plus current rates for transmission, distribution, and transition. This rate is calculated for each EDC and rate class.

Thus, Rate Counsel recommends that any future project or solicitation manager that may be hired as a result of the development of this new program take net metering financial support into account in either the evaluation of competitive offers, or any other standard offer that may arise from the competitive bidding process. Again, as Rate Counsel has stated, an important goal of this new program needs to be the elimination of over-compensation for New Jersey solar energy projects, particularly in the current challenging economic environment. Rate Counsel

[8] I/M/O a New Jersey Solar Transition Pursuant to P.L. 2018, c. 17, BPU Docket No. QO19010068, (December 6, 2019).

also notes that if the Board utilizes Rate Counsel's recommended "attributes only" approach, it could reduce overcompensation issues associated with net metering since competition would force developers/projects to bid the lowest needed price in order to receive financial support.

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

Response

No, net metering projects do not need an additional financial incentive which runs the risk of over-compensating New Jersey solar development. As Rate Counsel has stated, there is no need for a bifurcated incentive structure. Also, please see Rate Counsel's comments to parts (a), (b), and (b)(ii) above and part (c) below.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

Response

Rate Counsel does not agree with the recommendation for a bifurcated incentive structure. Competitive structures are preferred and are more consistent with the intent of the CEA. The above question, as do others in this set of inquiries, presumes that while larger projects can compete in competitive solicitations it is too difficult for smaller projects to do the same. New Jersey's experience with the long-term SREC contracting program, however, disproves this presumption. Several award-winning bids in the long-term SREC contracting program were smaller than 10 kW. These programs were in existence for several years for Jersey Central Power & Light Company ("JCP&L"), Rockland Electric Company ("RECO"), and Atlantic City Electric Company ("ACE"). There is nothing to suggest, therefore, that smaller projects cannot participate in a competitive bidding process. The Board should exhaust

its options in creating a competitive program, or one based on competitive bidding data, before turning to administratively-determined prices.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

Response

Rate Counsel does not agree with the recommendation for a bifurcated incentive structure nor does Rate Counsel support overly detailed solar market segmentation. If the Board chooses to segment these particularly types of solar projects as specified in the CEA, then it should either: (a) consider having a separate competitive solicitation for these projects alone; or (b) make slight changes in the scoring evaluation of any broader competitive solicitation in an attempt to balance the playing field for these types of applications.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

Response

Rate Counsel supports a modified version of the total compensation incentive structure that is similar to the Solar Massachusetts Renewable Target ("SMART") program but limits financial support to environmental attributes only. Rate Counsel believes this is the only incentive option that provides transparency and certainty to both project developers and ratepayers. It is also the only incentive mechanism that will support solar development in an "efficient" and "orderly" fashion as defined in the CEA, by using "competitive processes such as competitive procurement and long-term contracts," with the ultimate objective of "transform[ing] the renewable energy market into one that can move forward without subsidies." N.J.S.A. 48:3-87(d)(3). Rate Counsel does not subscribe to the belief that smaller projects are

somehow prejudiced or do not have the ability to participate in competitive processes. As noted earlier, there is New Jersey-specific experience to show otherwise.

2. If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

Response

Please see Rate Counsel's general comments above. Rate Counsel does not support an administratively set incentive. There is no guarantee that the Board will ever have complete and contemporaneous information that guarantees ratepayers are funding the most competitively priced and efficient projects. Going forward, the most important concept in ensuring that new programs continually reduce the cost of achieving the State's solar energy goals is to incorporate competition. To the extent that new programs are needed, Rate Counsel supports using competitive bidding and other forms of market-based mechanisms for stimulating new solar development.

This specific question highlights the problem with administratively set incentives. "How often should the incentive value be re-evaluated and potentially reset?" If anything has been learned from the Legacy SREC Program, and the contentious proceeding in developing the Solar Transition program, it is that there is no way to guarantee complete and contemporaneous information to administratively set prices. Throughout the Legacy SREC program, the repeated meddling with SACP prices and SREC requirements created confusion and financing difficulties for developers, and placed unacceptable price risk on ratepayers. More importantly, this practice of fine-tuning markets, with little to no market-based information, resulted in the considerable over-compensation of New Jersey solar energy projects at ratepayers' expense.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

Response

No. Incentive values should be set by competitive bidding results. The Board may consider setting up separate types of competitive solicitations, which could result in different market-based incentives, but that type of outcome is entirely different than the administratively determined one premised in the above question. Also see Rate Counsel's response to part 2(a) above.

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

Response

Please see Rate Counsel's general comments, and responses part 1 and 2(a) above. There is no way to continually reduce the cost of solar development to ratepayers through administratively set incentives. Administratively determined incentive values are inefficient, and place far too much price risk upon ratepayers and will more than likely be higher than competitive market-based outcomes.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

Response

Rate Counsel disagrees with the use of the term "qualification life" since this presumes that a tradeable certificate-based market design is acceptable and consistent with the CEA. Rate

Counsel recommends that term lengths for financial support for all projects should be set for a shorter period of ten years. This reflects the falling cost of solar installations while allowing project owners to recover costs quickly and reduces the time period over which ratepayers are subsidizing solar energy. Other project sizes should have their financial support timed to terms of ten years as well.

3. If NJBPU were to implement incentives based on a competitive solicitation:

a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

Response

Please see Rate Counsel's general comments, and responses to part 1 above. Rate Counsel continues to advocate for solar incentive programs that aggressively reduce ratepayers' financial burdens. Developing a program that promotes continued solar development at minimal ratepayer costs should be the primary goal of the Successor Program. The Board must adopt a program that ends the over-incentivization of New Jersey solar installations. Thus, as detailed below, Rate Counsel strongly supports a program that relies on a competitive solicitation process. Rate Counsel believes that this is the only option that can achieve the CEA's objective of replacing the current SREC program with one that will reduce costs to ratepayers. Project selection should be based exclusively on price.

Rate Counsel has repeatedly advocated for a Successor Program modeled after the SMART Program used in Massachusetts. The SMART Program is designed to procure solar generating capacity based on long-term, fixed-price contracts. Through the SMART Program participants receive a fixed per kWh compensation that is separate from their electricity bill for a period of 10 or 20 years.

While Rate Counsel suggests following a program structure similar to that used in Massachusetts, it also recommends that the Board exercise caution in establishing numerous market segments. While the CEA requires some market segmentation, the Board should not overly segment the market. Setting unreasonable and unnecessary segment targets could lead to higher prices and shortfalls in reaching the CEA's solar energy goals. Additionally, Rate Counsel does not support a size cap for projects participating in this program. The focus of any incentive program going forward should be to encourage the most cost-efficient projects at the lowest unit price ($/MWh). Establishing a cap on project size could run contrary to this goal. In addition, as explained above, the program structure should recognize and address the distorting effect of continuing net metering subsidies.

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

Response

A bundled approach reduces overall project cost recovery risk for developers, which in turn, should increase project "finance-ability." This risk, however, is not eliminated but simply shifted away from solar project developers and onto ratepayers. Rate Counsel supports financial mechanisms that reduce ratepayer risk exposure and costs. Thus, Rate Counsel believes that a competitive solicitation based on environmental attributes alone, would be preferable to an "all-in" or bundled approach.

Rate Counsel recognizes that the Massachusetts SMART program provides solar developers with a bundled price including attribute, energy and capacity. While the Massachusetts model utilizing an "all-in" approach may make sense in that jurisdiction, it does

not make sense for New Jersey given the relative differences in the size and maturity of each state's respective solar market. Massachusetts started the SMART program in 2018 in large part to reverse what was perceived as a perennial problem with lagging total solar capacity installations. New Jersey, on the other hand, has had a robust solar market (for both small and larger scale installations) for over 16 years. New Jersey was one of the earliest and most aggressive in initially establishing a solar set-aside within its RPS back in 2004 which was increased in 2006. In 2007, New Jersey was one of the first states to adopt a relatively comprehensive standardized solar market design. New Jersey adopted its first comprehensive EDC backed solar program, PSE&G's Solar Loan Program,[9] as early as 2008. A long-term solar contracting model, a unique framework for securitizing solar investments, was adopted in 2008. Further, New Jersey has been in the top ten states for solar capacity development for 12 years consecutively and was in the top five states for eight out of the last 12 years. Massachusetts, on the other hand, has never broken into the top five solar installation states on total solar capacity basis (i.e., large and small scale installations). Thus, New Jersey, as a leader in all types of solar energy development does not need to follow the same de-risking route adopted by Massachusetts.

While the New Jersey "OREC" method of funding offshore wind ("OSW") is comparable in many ways to the Massachusetts SMART program, offshore wind and solar are simply not comparable from a development risk perspective. OSW is an emerging renewable energy application; solar energy, particularly in New Jersey, is not. The New Jersey solar industry is

[9] I/M/O the Petition of Public Service Electric and Gas Company for Approval of a Solar Energy Program and an Associated Cost Recovery Mechanism, BPU Dkt. No. EO07040278 (Apr. 16, 2008).

well developed industry. Large solar applications today are even close to grid parity from a cost perspective, raising the question of whether or not any form of subsidy should exist at all.

Further, the risks associated with the two renewable energy applications are considerably different. Consider that OSW applications are usually very large centrally-located projects, with numerous turbines with capacities that often total into the hundreds of MWs, if not around 1,000 MWs like the most recent announced New Jersey project being developed Orstead. These facilities are typically assembled and installed in hostile to very hostile marine environments. These offshore locations need to be interconnected to onshore transmission facilities. The simple logistics of their development and construction, much less their operations, often necessitates an "all-in" contracting approach. This is simply not the case for solar installations that are often located in close proximity to distribution and transmission lines, are well understood by financial institutions, and are more easily developed. There is no need, therefore, to offer additional "de-risking" benefits to solar energy that are, at least currently, being offered to OSW.

The "all-in" approach also is not appropriate for New Jersey's solar market given the relevant legal and regulatory history. As the board is aware, until the enactment of the Electric Discount and Energy Competition Act of 1999, N.J.S.A. 48:3-49 et seq. ("EDECA"), New Jersey's four electric utilities were vertically integrated utilities that provided bundled electric generation and distribution service. In EDECA, the Board was directed to separate the utilities' generation functions from their transmission and distribution functions. The electric utilities retained their regulated monopoly over electricity transmission and distribution, while most of their generation assets were spun off to unregulated entities, and non-utility electric power suppliers were allowed to compete to provide generation. N.J.S.A. 48:3-52, N.J.S.A. 48:3-53, N.J.S.A. 48:3-59.

As the Board recognized in the context of the Stranded Costs and Restructuring filings of one of the utilities, Public Service Electric and Gas Company ("PSE&G"), one of the important benefits of New Jersey's electric industry restructuring for the State's electricity users was the transfer of the risks of electric generation ownership away from ratepayers an onto unregulated entities. In that proceeding, the Board adopted a non-unanimous stipulation, over the objections of Rate Counsel and other parties, in part the divestiture of PSE&G's generation assets to an unregulated affiliate transfer of "any risks or liabilities associated with the electric generation business" from the regulated utility to the unregulated affiliate. PSE&G In re Public Service Electric and Gas Company's Rate Unbundling, Stranded Costs and Restructuring Filings, 1999 N.J. PUC Lexis 11 at *307-08, par. 27 (1999), aff'd 330 N.J. Super. 112 (App. Div. 2000), aff'd 167 N.J. 377, (2001).

The "all-in" approach would undermine the purposes of EDECA by transferring the risks of owning generation back onto ratepayers. While there are exceptions, these are pursuant to specific legislative authority. PSE&G Solar 4 All program for example was authorized pursuant to New Jersey's Regional Greenhouse Gas Initiative ("RGGI") law, N.J.S.A. 48:3-98.1.[10] An "all-in" approach to solar incentives for a large number of solar projects to be owned by unregulated entities would represent a significant change, to the detriment of New Jersey's electric ratepayers.

Further, as noted above, the New Jersey's solar development goals, as part of the State's Class I renewable goals, must be met within the CEA's cost caps. In order to comply with the

[10] I/M/O the Petition of Public Service Electric and Gas Company for Approval of a Solar Generation Investment Program and An Associated Cost Recovery Mechanism, BPU Docket No. EO09020125, Order Approving Stipulation at 1 (Aug. 3, 2009); I/M/O the Petition of Public Service Electric and Gas Company for Approval of an Extension of a Solar Generation Investment Program and Associated Cost Recovery Mechanism, BPU Docket No. EO12080721, Order at 1 (May 29, 2013).

costs caps the Board must minimize the costs of solar development and it must be able to track those costs. An "all-in" approach, in addition to potentially increasing costs, would make tracking, and compliance, difficult or impossible because solar developers would be receiving a bundled price for electricity and solar attributes.

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single-clearing price system.

Response

Please see Rate Counsel's response to part 3(a) above. A pay-as-bid system will ensure that price is based on the least-cost, most-competitive projects and is an approach that was utilized in the New Jersey SREC contracting program. Thus, Rate Counsel recommends the Board stay with this precedent and utilize a pay-as-bid approach.

As explained above, the Massachusetts SMART program is structured in capacity blocks and as projects respond to the incentive rate offered, the capacity blocks are filled. Going forward, incentive payments decrease by a pre-determined amount for each block so that once a block reaches its maximum capacity within a distribution company's service territory, future projects then become eligible for the rates offered in the next lower-priced block. Projects are awarded on a first-come, first-served basis. This provides a strong financial signal for early adopters and ensures that ratepayers are paying for the most cost-efficient projects.

d. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

Response

No, particularly if this information was made available to the market. Setting publicly disclosed prices and floors could lead to strategic pricing and gamesmanship which will only bid

up prices, over-compensate solar developments, and increase ratepayer costs. As previously stated, Rate Counsel recommends a pay-as-bid system to will ensure that price is based on the least-cost, most-competitive projects.

e. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

Response

As noted by the draft Capstone Report, one issue with the Massachusetts SMART program was the speed at which a number of service areas capacity caps were reached, in part due to the delay in the program's implementation and large projects holding space capacity in reserve (i.e., queue sitting). The certainty created by this incentive type can lead to many projects seeking to be constructed as early as possible when the policy is finalized. New Jersey can learn from experience of a program that has already been tested and note that this potential issue will need to be monitored.

One potential method in which this type of problem can be avoided is by clearly articulating development goals and targets and sticking to those goals. All too often, there is a tendency by certain stakeholders to modify or fine-tune programs of this nature. While flexibility is important, constant changing and "tinkering" with program targets can lead to the same kinds of uncertainty experienced in New Jersey. Further, Rate Counsel believes that a robust competitive process, like the one it proposes that is based on environmental attributes alone, may help to minimize this type of problem.

f. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?

Response

Please see Rate Counsel's comments above. The Board should consider separate competitive solicitations if it wants to vary incentive levels based on project attributes.

g. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

Response

See our earlier comments on this topic. Rate Counsel disagrees with the use of the term "qualification life" since this presumes that a tradeable certificate-based market design is acceptable and consistent with the CEA. As discussed above, Rate Counsel recommends a 10-year incentive term for all projects.

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

Response

Rate Counsel recommends that all programs be administered by the Board and that the EDCs' role in this process be minimized. There are a host of legal and regulatory issues that arise by engaging the EDCs in this process. The best program design should be one that attempts to avoid these complications.

4. **How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?**

Response

The Board should consider including some form of market monitoring function as part of this Successor Program. A solar market monitor is something that has been sorely needed in New Jersey's solar markets.

In addition, queue sitting may be addressed through the use of a performance deposit. A performance guarantee deposit would be submitted at the time of bid submittal, or after the initial capacity solicitation, upon program registration.

5. **The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.**

   a. **Generally, how can this flexibility be incorporated into the design of the Successor Program?**

Response

Flexibility to respond to changing market circumstances would automatically be incorporated in a competitively-bid incentive structure like that used in the Massachusetts SMART Program. Similarly, once identified, emerging technologies could easily be encouraged and incentivized through an adder much like the adders for projects coupled with storage technology. Alternatively, the Board could consider separate competitive solicitations to promote a certain type or class of solar projects and let the market determine the additional marginal financial incentive needed to develop these types of emerging technologies or applications.

b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

Response

Changes in tax credits or carbon-pricing policies would automatically be incorporated in a competitively-bid incentive structure since projects will be bidding for the environmental attributes, or additional margin, they need for development. The competitive bidding process will assure that solar projects utilizes current tax and other incentives in forming their bids. Any project that fails to take such changes in to consideration will likely not receive funding.

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

Response

Changes in regulatory structures and capacity markets, that in turn, change project economics, will be incorporated in a competitively-bid, incentive structure based on environmental attributes only. An 'all-in" incentive structure, while competitively bid, still places too much risk on ratepayers in the form of energy and capacity revenues.

6. The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

Response

Rate Counsel has no position on out of state incentives at this time but suggests that, where possible, the Board focus its efforts on the development of New Jersey specific solar energy resources. The Board, however, must be cognizant of the Commerce Clause when limiting the participation of out-of-state solar projects.

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

As noted above, Rate Counsel suggests that the Board attempt to maximize in-state solar energy development, where possible, before turning to the creation of new financial support mechanisms for out-of-state resources. Further, Rate Counsel suggests that ratepayer costs be an important consideration in the promotion of out-of-state solar energy resources. For instance, New Jersey financial support for an out-of-state solar energy application may make the most sense if there is an overwhelmingly significant cost advantage for supporting a specific, most likely very large, application. Again the Board should be cognizant of the Commerce Clause when limiting the participation of out-of-state projects.

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

In the absence of a more specific proposal for the Solar Successor program, Rate Counsel is not able to provide the requested legal opinion.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

Rate Counsel is unsure of the intent of this question. Transmission limits, however, are physical limitations on the system and there is an actual, not theoretical limit on imports into New Jersey. Rate Counsel reserves the right to supplement its response depending on further clarification of this question.

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

Rate Counsel is uncertain about the intent of this question. It is unclear whether the question concerns bilateral contracts, interconnection points or some other delivery mechanism. The legal ramifications of requiring any power generation resource to sell in any wholesale power market requires a different analysis. Past judicial and FERC decisions at the FERC suggest that this concept is potentially challengeable and each option has potential challenges.

Topic 2: Modeling

The modeling conducted by Cadmus and described in the draft Capstone Report was largely informed by the assumptions used in the Transition Incentive program modeling, updated cost data from projects in the SRP, and subsequent stakeholder engagement such as the March 2020 Successor Program cost survey. Staff is interested in stakeholder feedback on Cadmus' assumptions and modeling choices. Staff has identified a number of specific questions below, but encourages stakeholders to share their assessment of the model and modeling assumptions beyond the focus of these questions.

7. Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

Response

Please see Rate Counsel's response to part 11, below. Rate Counsel recommends a pay-as-bid system to ensure that the price is based on the least-cost, most-competitive projects. The pay-as-bid system would not provide differential incentives to direct-owned ("DO") projects and third-party owned ("TPO") projects.

8. Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

Response

Rate Counsel cannot comment on the impact of the adoption of the 2018 building codes on residential system size. Rate Counsel notes that Cadmus assumed the system size for out-of-state projects as follows -

> For the out-of-state variant, Cadmus reviewed projects registered with PJM GATS, adjusting the data as follows:
> - Kept only projects where Primary Fuel Type was "SUN"
> - Excluded projects with Nameplate < 5 MW (in AC)
> - Kept only projects with PJM Interconnection as Balancing Authority[11]

For the out-of-state variant, Cadmus selected a capacity of 10 MW (DC) for a prototypical out-of-state project by reviewing project sizes by state. However, Cadmus "Excluded projects with Nameplate < 5 MW (in AC)" before conducting its review of projects. This exclusion may have resulted in an upward bias in project size.

b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

Response

Please see Rate Counsel's general comments as well as the response to part (1), above. The specific installed cost values assumed by Cadmus reflect Cadmus' analysis of available historical and contemporaneous information. Despite their best efforts, Cadmus' analysis of installed costs is based on incomplete and potentially out-of-date information. Thus, the installed cost assumptions identified by Cadmus will likely be incorrect, exposing ratepayers to the risk that installed costs will be overestimated, and that the resulting incentives will be too high.

[11] Draft Capstone Report, p. 33.

In addition, as discussed above, in part 8(a), Rate Counsel is concerned that the assumed out-of-state project size may be biased upwards, which would also cause installed cost (per kw) to be understated. Rate Counsel also notes that the installed cost (per kw) for Community Solar projects may be overstated because Cadmus has failed to account for the potential that Community Solar projects may partner with local government and other entities to obtain preferential access to lower-cost sites, while at the same time accounting for potential cost drivers related to such projects. As stated in the report:

> Community Solar projects have certain unique, upfront costs (e.g., acquiring subscribers, setting up utility bill allocations) and ongoing administrative costs (e.g., allocation of credits and managing potential subscriber churn).[12]

Cadmus however, fails to recognize the potential cost savings.

c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

Response

Rate Counsel believes that the interest rates in Tables 19 and 20 may be overstated. Rate Counsel understands that:

> Cadmus relied primarily on financial inputs from the Transition Incentive modeling work, including for the debt share of capital, interest rates, debt tenors, and after-tax equity internal rates of return (IRRs).[13]

However, Cadmus's Transition Incentive modeling assumptions were presented in August 2019. Interest rates have declined since then, as a result of the intervening pandemic and associated recession.

d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

[12] Draft Capstone Report, p. 28.
[13] Draft Capstone Report, p. 28.

Response

Solar projects are diverse in nature in terms of not only size, but type, installation location, and several other factors. It is difficult to exactly know how these demand charge reductions will arise. A generalization is likely the best means of estimating these impacts.

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

Response

See response to (d) above.

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

Response

Rate Counsel has no opinion on this issue at the current time.

9. Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

Response

Cadmus' derivation of wholesale and energy prices contains a number of errors. Cadmus relies on wholesale energy price projections from 2018, when an updated, 2020 price projection could be developed from the same sources:

> Cadmus adopted wholesale energy and capacity prices derived in the May 1, 2019, update of the *Energy Efficiency Cost-Benefit Analysis Avoided Cost Assumptions, Technical Memo*, produced each year by the Rutgers Center for Green Building for the NJCEP.[14]

In the May 2019 update of the Energy Efficiency Memo, New Jersey wholesale electric prices were derived as follows:

[14] Draft Capstone Report, p. 63.

> Historic 2017 New Jersey wholesale electric prices from PJM were escalated based on the annual percent change in the EIA 2018 Annual Energy Outlook using the Reliability First Corporation/East Electricity Generation Prices. The annual percent change was, on average, about 2.37%. The seasonal peak and off-peak factors were derived using historic 2017 PJM LMP data.[15]

These figures are out-of-date. Wholesale energy prices have fallen, so that in 2019, wholesale electric prices in PJM were lower than in 2017, and 2020 prices are expected to be even lower as a result of the economic recession caused by the pandemic. For example, Atlantic City Electric Company's ("ACE's") real-time load-weighted average LMP fell from $33.70/Mwh to $25.07/Mwh in 2019 and, during the first six months of 2020 average ACE prices were 33% lower than the year-ago period.[16]

In addition, Cadmus adds $1.06/Mwh to energy prices to reflect revenue earned from the sale of ancillary services, because:

> The memo also recommends adding an amount to energy prices an amount to reflect ancillary services (e.g., regulation, scheduling, dispatch and system control, reactive power, synchronized reserves). Cadmus accessed the most recent, annual version of that value from the report referenced in the memo.[17]

However, as explained in the 2019 PJM State of the Market Report, solar generation does not provide certain ancillary services, including scheduling, dispatch and system control and synchronized reserves.[18] Cadmus should change the assumed ancillary services adder to $0.44/Mwh so that it only accounts for reactive power, the one ancillary service solar generation provides.

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[15] https://www.njcleanenergy.com/files/file/BPU/Avoided%20Cost%20Memo.pdf, p. 2.
[16] See https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2018/2018-som-pjm-sec3.pdf, p. 183, https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019/2019-som-pjm-sec3.pdf, p. 162, and https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2020/2020q2-som-pjm-sec3.pdf, p. 170..
[17] Draft Capstone Report, p. 63.
[18] https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019/2019-som-pjm-sec10.pdf

10. Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Response

Rate Counsel recommends the use of a Top-Down forecasting method in which the MW targets for the Successor Program are set at the level required to meet the State's solar capacity targets. As discussed in its general comments and response to part (1), above, Rate Counsel strongly supports a program that relies on a competitive solicitation process. Rate Counsel believes that this is the only option that can achieve the CEA's objective of replacing the current SREC program with one that will reduce costs to ratepayers and allow the State to meet its solar capacity targets and maintaining compliance with the legislative cost caps.

11. Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

Response

Rate Counsel opposes providing DO and TPO projects with differentiated incentives. To the extent DO and TPO projects have differing financing, installed costs or required return, under a bid-based competitive system the force of competition will naturally drive the market to increase the provision of whichever ownership structure is lowest cost. Providing differentiated incentives would effectively force ratepayers to incentive the use of an inefficient ownership structure.

12. Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

Response

Rate Counsel reiterates its objection to any type of administratively determined incentive structure. The transparency and replicability of Cadmus' modeling could be improved by relying on PJM and Department Of Energy ("DOE") sources for inputs whenever available, so that the derivation and updating of model inputs would be transparent. For example, as noted above, wholesale energy and capacity prices could be taken from the latest 2020 version of the relevant DOE Annual Energy Outlook Table, "Electric Power Projections by Electricity Market Module Region," whereas Cadmus' modeling currently relies on the 2018 version of the relevant AEO Table, which appears in the May 2019 technical memo Cadmus relies upon.

13. Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

Rate Counsel does not have any additional comments at this time.

New Jersey Solar Transition
Successor Program Capstone Report Staff Request for Comments
Docket No. QO20020184

Comments of Rockland Electric Company

Rockland Electric Company ("RECO" or the "Company") submits these comments in response to the New Jersey Board of Public Utilities' ("Board") Request for Comments on the Successor Program Capstone Report ("Capstone Report"), dated August 21, 2020 in the above-referenced docket. RECO appreciates the Board's continued effort to engage stakeholders in the development of the Successor Program and the substantial work undertaken by the Board and its consultants. In the comments below RECO continues to voice its support for a Successor Program that promotes the cost-effective deployment of solar resources in New Jersey and maintains flexibility to reflect improving technology and business models. Further, RECO continues to advocate that the Board holistically review State incentives developed to meet the goals of the Clean Energy Act of 2018, with an eye toward clear market incentives that reduce overall costs to customers while meeting State goals.

As the Company has stated in prior comments, regardless of the incentive structure implemented the total incentives available for Class I technologies must fall within the cost cap established in the Clean Energy Act for the State's RPS program.[1] Related to that point, and as prioritized in the Capstone Report, the Board must develop an incentive that cost effectively supports a robust solar market in the State, with an eye toward minimizing the bill impacts to all (particularly non-participating) customers. The Capstone Report specifically prioritizes maximizing cost-effectiveness and minimizing ratepayer impacts and/or maximizing ratepayer net benefits.[2]

RECO recommends that a market-based approach be implemented for all projects under the Successor Program. If a fixed incentive program is implemented, frequent review and updates will be required. The Successor Program should be established to minimize customer bill impacts and be used as an opportunity to phase out costly and market-distorting net metering incentives. The Company also addresses some of the Capstone Report's Successor Program Recommendations below.

Capstone Report Recommendation: Maintain flexibility and implement a Fixed Incentive program as a first stage, with potential to evolve towards a more Total Compensation paradigm

The Company agrees and recommends a market-based program to promote flexibility. A market-based program can respond to market and other external signals without requiring significant, ongoing administrative review. Pay as bid auctions encourage developers to base their bids on their cost structures and can result in lower customer costs. The Capstone Report notes that the disadvantages of a market-based approach include the risk of market volatility in cases of shortages and risk premiums built into financing that may increase costs. [3] Transparency and market-sustainability can reduce the premiums that investors demand, and clear price signals and market-based approaches can sustainably foster New Jersey's solar ecosystem. For example, the Board should avoid over-segmenting the market that might result in smaller market pools and less competitively bid prices.

[1] P.L. 2018, Chapter 17 as amended by S-4275 (2019).
[2] New Jersey Solar Transition Draft Capstone Report, Successor Program Review at p.4 Table 7 (August 11, 2020) ("Capstone Report").
[3] Capstone Report, p. 23

Flexibility is key to developing a program that meets the requirements of the Clean Energy Act's cost cap. Any solar incentive program must be viewed as part of a holistic approach to meeting the State's renewable energy goals while maintaining a robust approach toward all clean technologies. The Capstone Report recognizes the impact of the cost cap on all clean energy programs, including the Successor Program. Minimizing customer bill impacts is critical to establishing an environment that encourages and supports deployment of renewable energy at costs that are manageable by all customers. Even though the cost cap proceeding is separate, the outcomes of these two proceedings must be viewed holistically.

While the Capstone Report has flexibility as its first recommendation, it also recommends a Fixed Incentive, especially during the beginning of the program. If a Fixed Incentive is provided, the Company agrees with the Capstone Report that frequent updates, monitoring and administration are necessary to achieve appropriate price level.[4] A fixed price would only represent a snapshot of conditions at the time it is established. Monitoring and updates should include wholesale market conditions, costs of building the projects, and the current compensation model for solar generation to incorporate aspects of market responsiveness[5] and produce a result that could more effectively minimize customer bill impacts.[6]

At a minimum, if the Board does adopt a fixed incentive as an interim solution, the Company recommends there be a competitive component to the establishment of this incentive, such as the proposal to have a competitive solicitation among a specific subset of projects that would set the baseline for a fixed incentive for the remainder of solar projects.[7] Because competitive markets produce more savings for customers and function better with more participants, the competitive portion of a competitive/fixed hybrid program should prioritize having a larger market for the competitive market versus the fixed incentive portion of projects. This solicitation can then inform the cap for administratively set incentives at a level that provides for solar development. In addition, if a fixed price option is chosen, it must decrease each year to reflect the decreasing costs of solar technology.

Finally, the Company cautions against delivering the incentives through project specific contracts with the EDCs. This mechanism should be reviewed through a broader analysis of replacement of the net metering compensation structure.

Capstone Report Recommendation: Maintain robust estimates of project economics.

The Company agrees that regulators must understand project economics, and that knowledge can facilitate customer savings and the achievement of state goals. RECO supports the Board's efforts to explore the most efficient and effective ways for it to maintain insight into project economics and market trends to inform adjustments or any measures imposed. This may also provide the Board insight into continuing market potential of various types of solar development and inform where the Board may want to best allocate incentives.

Capstone Report Recommendation: Differentiate between project types

As stated earlier, the Company recommends that the Board adopt a market-based approach for the successor program or, at a minimum, include a competitive solicitation as part of a Fixed Incentive program. With either approach, the Company encourages competitive solicitation with as little differentiation among projects as possible. This increases the bid pool and encourages the most economic

[4] Ibid, p. 36
[5] The TREC program is limited in duration so that market responsiveness concerns are lessened.
[6] Capstone Report at 20.
[7] Id.

projects. To achieve certain policy objectives, such as prioritization of specific locations, the Board can explore the use of adders. However, it will want to review and verify that such incentives are promoting economic and viable projects. Further, the Board can continue the practice of factorization as part of a Fixed Incentive, to recognize certain projects' revenue streams result in the project being financially viable without the full incentive amount.

Capstone Report Recommendation: Differentiate between utility territories

The Capstone Report contemplates differentiating by utility service territory to reflect varying energy costs (higher energy costs requiring lower incentives and vice versa)..

The Capstone report cites to the New York program that differentiates between utility service territories. The New York compensation mechanism for solar projects provides for some variation among the utilities, which if considered in New Jersey should be part of a broader analysis of the replacement for net metering and the total compensation paid to solar projects. In addition, there can be other tools used to inform the solar market on interconnection costs, solar penetration, and electric system needs (*i.e.*, areas of constraints). Hosting capacity maps are already an available tool that can inform the market where to pursue development.

Capstone Report Recommendation: Consider treating DO systems differently.

As discussed above, the Company cautions against over-segmenting the market for a market-based approach. In particular, it can increase complexity for developers and reduce competitiveness by dividing the market. The Company does note, however, that if the Board pursues a Fixed Incentive approach, such incentive should include a competitive element. It may make sense, after further evaluation, that these smaller systems receive a fixed incentive informed by the competitive process.[8]

Capstone Report Recommendation: Coordinate with related programs

The Capstone Report recommends coordination with related programs, including utility programs and operations, net metering, other clean energy programs and goals, and energy storage. The Company supports this review of the Successor Program in the context of the overall clean energy picture for the State.

The level of solar penetration in areas of the grid should be considered so that a program is sending the appropriate signals to developers. The utilities already provide insight into those locations that may be more economical or efficient to interconnect through their publicly available hosting capacity maps. Further, utilities can provide insight into areas of their distribution system where the resource could provide more system value than others.

Another area that requires coordination and review with the development of a Successor Program is net metering. The Capstone Report notes that the CEA's net metering milestone may be reached in just a few years.[9] In anticipation of this, the Company recommends the Board review net-metering, in light of increasing clean energy targets and the need to achieve these targets cost-effectively. Specifically, the Company recommends the Board explore replacement of net-metering with an incentive that more accurately values the costs and benefits of increased solar on the grid, potentially working toward the total

[8] Capstone Report at 20.
[9] P.L. 2018, Chapter 17 §2

compensation mechanism discussed in the Capstone Report in a timely manner. This will provide all participants with adequate notification of such a change.

In addition, the Successor Program will need to be responsive to changes as other clean energy programs and policy goals are developed. The State will want to prioritize and develop programs to support the most economic and beneficial renewable technologies. Further, the Board will want to coordinate programs and policies to avoid double counting of benefits provided by a resource. Further, the State will need to view its programs to work toward the goal of prioritizing deployment of clean energy for low- and moderate-income communities and must work so that there is a strong, coordinated approach to drive investment and provide associated benefits. The Board should consider the Energy Master Plan policy for a technology-neutral approach and not allocate all the space under the cost cap to a solar program (either Legacy SREC, TREC, or Successor Solar) so that funds for incentives for any other Class I technology are unavailable.

The Capstone Report also highlights the potential for energy storage as both a viable standalone resource but also as a complement to solar. The Company recommends that future incentives remain technology neutral and recognize the value provided by such resources to the grid.

Finally, working groups with clearly defined objectives can provide insight to the solar market and identify emerging issues that can be addressed prior to causing substantial disruption to market development. The Company's affiliate, Orange and Rockland Utilities, Inc., has had positive experiences with interconnection policy and technical working groups in New York. A similarly focused working group could prove beneficial in New Jersey in assisting the achievement of its clean energy goals.

Conclusion

The Company appreciates the opportunity to comment on the Capstone Report. The Capstone Report recommendations for establishing a flexible market that maximizes savings for customers are goals RECO shares. The Company recommends the adoption of market-based solutions because they can best aid in meeting the State's goals, while minimizing costs to customers.

New Jersey Solar Transition
Successor Program Capstone Report Staff Request for Comments
Docket No. QO20020184

Updated Comments of Rockland Electric Company

Rockland Electric Company ("RECO" or the "Company") submits these comments in response to the New Jersey Board of Public Utilities' ("Board") Request for Comments on the Successor Program Capstone Report ("Capstone Report"), dated August 21, 2020 in the above-referenced docket. RECO appreciates the Board's continued effort to engage stakeholders in the development of the Successor Program and the substantial work undertaken by the Board and its consultants. In the comments below RECO continues to voice its support for a Successor Program that promotes the cost-effective deployment of solar resources in New Jersey and maintains flexibility to reflect improving technology and business models. Further, RECO continues to advocate that the Board holistically review State incentives developed to meet the goals of the Clean Energy Act of 2018 ("CEA"), with an eye toward clear market incentives that reduce overall costs to customers while meeting State goals.

As the Company has stated in prior comments, regardless of the incentive structure implemented the total incentives available for Class I technologies must fall within the cost cap established in the CEA for the State's RPS program.[1] Related to that point, and as prioritized in the Capstone Report, the Board must develop an incentive that cost effectively supports a robust solar market in the State, with an eye toward minimizing the bill impacts to all (particularly non-participating) customers. This aligns with the Solar Transition principle to provide maximum benefits to ratepayers at the lowest cost.[2]

RECO recommends that a market-based approach be implemented for all projects under the Successor Program. If a fixed incentive program is implemented, frequent review and updates will be required. The Successor Program should be established to minimize customer bill impacts and be used as an opportunity to phase out costly and market-distorting net metering incentives. The Company also addresses some of the Capstone Report's Successor Program Recommendations below.

Capstone Report Recommendation: Maintain flexibility and implement a Fixed Incentive program as a first stage, with potential to evolve towards a more Total Compensation paradigm

The Company agrees and recommends a market-based program to promote flexibility. A market-based program can respond to market and other external signals without requiring significant, ongoing administrative review. Pay as bid auctions encourage developers to base their bids on their cost structures and can result in lower customer costs. The Capstone Report notes that the disadvantages of a market-based approach include the risk of market volatility in cases of shortages and risk premiums built into financing that may increase costs. [3] Transparency and market-sustainability can reduce the premiums that investors demand, and clear price signals and market-based approaches can sustainably foster New Jersey's solar ecosystem.

Flexibility is key to developing a program that meets the requirements of the CEA's cost cap. Any solar incentive program must be viewed as part of a holistic approach to meeting the State's renewable energy goals while maintaining a robust approach toward all clean technologies. The Capstone Report

[1] P.L. 2018, Chapter 17 as amended by S-4275 (2019).
[2] New Jersey Solar Transition Draft Capstone Report, Successor Program Review at p.6 (August 11, 2020) ("Capstone Report").
[3] Capstone Report, p. 23

recognizes the impact of the cost cap on all clean energy programs, including the Successor Program. Minimizing customer bill impacts is critical to establishing an environment that encourages and supports deployment of renewable energy at costs that are manageable by all customers. Even though the cost cap proceeding is separate, the outcomes of these two proceedings must be viewed holistically.

While the Capstone Report has flexibility as its first recommendation, it also recommends a Fixed Incentive, especially during the beginning of the program. If a Fixed Incentive is provided, the Company agrees with the Capstone Report that frequent updates, monitoring and administration are necessary to achieve an appropriate price level.[4] A fixed price would only represent a snapshot of conditions at the time it is established. Monitoring and updates should include wholesale market conditions, costs of building the projects, and the current compensation model for solar generation to incorporate aspects of market responsiveness[5] and produce a result that could more effectively minimize customer bill impacts.[6]

At a minimum, if the Board does adopt a fixed incentive as an interim solution, the Company recommends there be a competitive component to the establishment of this incentive, such as the proposal to have a competitive solicitation among a specific subset of projects that would set the baseline for a fixed incentive for the remainder of solar projects.[7] Because competitive markets produce more savings for customers and function better with more participants, the competitive portion of a competitive/fixed hybrid program should prioritize having a larger market for the competitive market versus the fixed incentive portion of projects. This solicitation can then inform the cap for administratively set incentives at a level that provides for solar development. In addition, if a fixed price option is chosen, it must decrease each year to reflect the decreasing costs of solar technology.

Capstone Report Recommendation: Differentiate between project types

As stated earlier, the Company recommends that the Board adopt a market-based approach for the successor program or, at a minimum, include a competitive solicitation as part of a Fixed Incentive program. With either approach, the Company encourages competitive solicitation with as little differentiation among projects as possible. This increases the bid pool and encourages the most economic projects.

Following the competitive solicitation, to achieve certain policy objectives such as prioritization of specific locations, the Board can explore the use of adders. Similarly, the Board can continue the practice of factorization, to recognize certain projects' revenue streams result in the project's financially viability without the full incentive amount. However, the Company cautions that differentiation among project types increases the level of complexity and administration needed, which in turn may increase the level of uncertainty regarding the specific incentive levels assigned.

Capstone Report Recommendation: Coordinate with related programs

The Capstone Report recommends coordination with related programs, including utility programs and operations, net metering, other clean energy programs and goals, and energy storage. The Company supports this review of the Successor Program in the context of the overall clean energy picture for the State.

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[4] Ibid, p. 36
[5] The TREC program is limited in duration so that market responsiveness concerns are lessened.
[6] Capstone Report at 20.
[7] Id.

The level of solar penetration in areas of the grid should be considered so that a program is sending the appropriate signals to developers. The utilities already provide insight into those locations that may be more economical or efficient to interconnect through their publicly available hosting capacity maps. Further, utilities can provide insight into areas of their distribution system where the resource could provide more system value than others.

Another area that requires coordination and review with the development of a Successor Program is net metering. The Capstone Report notes that the CEA's net metering milestone may be reached in just a few years. In anticipation of this, the Company recommends the Board review net-metering, in light of increasing clean energy targets and the need to achieve these targets cost-effectively. Specifically, the Company recommends the Board explore replacement of net metering with an incentive that more accurately values the costs and benefits of increased solar on the grid, potentially working toward the total compensation mechanism discussed in the Capstone Report in a timely manner. This will provide all participants with adequate notification of such a change.

In addition, the Successor Program will need to be responsive to changes as other clean energy programs and policy goals are developed. The State will want to prioritize and develop programs to support the most economic and beneficial renewable technologies. The Board should consider the Energy Master Plan's policy for a technology-neutral approach and not allocate all the space under the cost cap to a solar program (either Legacy SREC, TREC, or Successor Solar) so that funds for incentives for any other Class I technology are unavailable. The Board should also coordinate programs and policies to avoid double counting of benefits provided by a resource. Further, the State will need to view its programs to work toward the goal of prioritizing deployment of clean energy for environmental justice and low and moderate income communities and must work so that there is a strong, coordinated approach to drive investment and provide associated benefits.

The Capstone Report also highlights the potential for energy storage as both a viable standalone resource but also as a complement to solar. The Company recommends that future incentives remain technology neutral and recognize the value provided by such resources to the grid.

Finally, working groups with clearly defined objectives can provide insight to the solar market and identify emerging issues that can be addressed prior to causing substantial disruption to market development. The Company's affiliate, Orange and Rockland Utilities, Inc., has had positive experiences with interconnection policy and technical working groups in New York. A similarly focused working group could prove beneficial in New Jersey in assisting the achievement of its clean energy goals.

Conclusion

The Company appreciates the opportunity to comment on the Capstone Report. The Capstone Report recommendations for establishing a flexible market that maximizes savings for customers are goals RECO shares. The Company recommends the adoption of market-based solutions because they can best aid in meeting the State's goals, while minimizing costs to customers.

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September 8, 2020

VIA ELECTRONIC MAIL
Honorable Aida Camacho-Welch
Secretary
State of New Jersey
Board of Public Utilities
Post Office Box 350
Trenton, New Jersey 08625-0350

Re: New Jersey Solar Transition, Successor Program Capstone Report Staff Request for Comments
Docket No: QO20020184

Dear Secretary Camacho-Welch:

I enclose Rockland Electric Company's Updated Comments on the New Jersey Solar Transition Successor Program Capstone Report in response to the Staff Request for Comments. Please note that Rockland Electric Company is making this filing solely in electronic form pursuant to the Board's directive in its Emergency Order dated March 19, 2020 in BPU Docket No. EO20030254.

Please contact me if you have any questions regarding this filing.

Very truly yours,

/s/ JoAnne Seibel

JoAnne Seibel
Project Specialist

New Jersey Solar Transition Draft Capstone Report

Comments by Safari Energy, LLC

To the New Jersey Board of Public Utilities:

Safari Energy appreciates the opportunity to provide comments on the New Jersey Solar Transition Draft Capstone Report, published by the New Jersey Board of Public Utilities on August 11th, 2020. We commend the BPU for their diligence and transparency throughout this process are very excited to see solar in New Jersey continue to grow. We present the following comments to be considered as Cadmus and the BPU work towards a New Jersey Solar Transition Final Capstone Report.

About Safari Energy

Safari Energy, LLC is the solar partner of choice for commercial and industrial customers, real estate owners, public sector organizations and solar developers seeking competitive financial solutions for their projects. Headquartered in New York City, Safari Energy ("Safari") has helped clients unlock enormous economic value and drive significant energy savings by developing hundreds of solar energy projects across the country, including more than 20 projects in New Jersey. With extensive interdisciplinary expertise, Safari supports the growth of distributed energy resources and PPL Corporation's focus on advancing a sustainable energy future.

Comments

1. Commercial/Grid Ground Mount Tilt

In Table 14, the current tilt assumptions for ground mount facilities is 18 degrees. Though this is not impossible, it not largely seen across the development of ground mount facilities. The most common range of tilt utilized is between 20 and 30 degrees. This is largely due to factors concerning shading and spacing. When spacing panels, you also must account for the tilt of the racking. If they are close together you need to make sure they are not tilted at such an angle that they will shade the adjacent rows and reduce production.

2. IRR Targets

In Table 19, Financial Parameters for PPA Projects, the IRR Target modeled is 9.7%. We would like to support the comments made at the August 20th Stakeholder Meeting that a 9.7% levered IRR is low, especially if it does equate to a 5% un-levered IRR. Some transactions we see have a capital cost of 6-10% un-levered IRR, and a higher levered IRR Target in your modeling would more realistically cover that range.

3. Electricity Rates Growth Rate

On Page 45 of the Draft Capstone Report, it is stated that Cadmus used a 2.4% annual growth rate for commercial electricity rates. Safari Energy feels this is a conservative assumption and encourages using the Wood Mackenzie, global energy research group, 3% growth rate forecast for commercial rates in New Jersey over the next 30 years.

4. PPA Rate

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Page 45 states that PPA rates are derived by applying a 15% discount on electricity rates. Safari Energy is of the view that this assumption is unduly conservative. Safari is aware of a number of examples in the market where developers have had to discount offtake rates by up to 50% of prevailing electricity rates in order to incentivize offtakers to enter into a transaction and to make the economics for the project work. For instance, in order to monetize the tax benefits for a project, our experience is that the transaction costs for including a project in a sale-leaseback facility range from $50K-$150k, further reducing margins and putting pressure on deal economics.

We appreciate the time taken to read these comments and look forward to the release of the Final Capstone Report.

Sincerely,

Safari Energy, LLC

New Jersey Solar Transition Draft Capstone Report

Comments of the Solar Energy Industries Association

I. Introduction & Overview Comments

The Solar Energy Industries Association ("SEIA") is pleased to submit the following comments on New Jersey Solar Transition Draft Capstone Report ("Capstone Report") prepared for the New Jersey Board of Public Utilities ("BPU" or "Board") on the solar successor incentive program ("Successor").

In brief, the Capstone Report is an excellent first step toward designing an incentive program that will help New Jersey reach its aggressive clean energy goals. The Capstone Report's recommendations regarding overall program design are generally on target. SEIA looks forward to working with the BPU to finalize this program and to continue to help encourage the growth of solar in the Garden State.

A. The Capstone Report's Successor Program Design Recommendations Are Sound

SEIA supports the Capstone Report's recommendations to:

- Establish an "always on" incentive program that uses a fixed incentive at first and then investigate more complex designs such as a total compensation model over time.
- Develop a fixed incentive for some projects, with values set administratively and develop incentives for other projects with values set by competitive solicitations.
- Establish an incentive program appropriately sized to meet the goals of the 2018 Clean Energy Act and State Energy Master Plan ("EMP") with differentiated incentives to reflect the needs of different industry market segments.
- Design a storage adder for paired storage and solar projects taking into consideration the independent development of incentives for stand-alone storage already underway at the BPU.
- Develop independent solar project cost modeling, with regular input from solar firms, for use by the BPU in ongoing discussions. Relatedly, this modeling should be used to inform yearly "quick look" assessments of the program and a full-scale triennial program review to reset incentives, if necessary, based on changing market conditions.

B. About SEIA

SEIA is leading the transformation to a clean energy economy, creating the framework for solar to achieve 20% of U.S. electricity generation by 2030. SEIA works with its 1,000 member companies and other strategic partners to fight for policies that create jobs in every community and shape fair market rules that promote competition and the growth of reliable, low-cost solar power. Founded in 1974, SEIA is a national trade association building a comprehensive vision for the Solar+ Decade through research, education, and advocacy. SEIA has more than 45 member companies located in New Jersey with many more national firms also conducting business in the state. Member companies range from panel manufacturers; residential;

community solar, and utility-scale solar developers; installers; construction firms; investment firms; and everything in between.

SEIA appreciates the opportunity to comment. These comments are organized with an opening narrative section explaining our positions followed by specific answers to the questions posed by the BPU. These answers are designated using blue text. Unless otherwise specified, failure to comment on any specific question should be interpreted to mean that SEIA does not take a position on the matter at this time.

II. Incentive Structure Design – Topic 1

A. Establish a Fixed Incentive Structure During the Early Years of the Successor

SEIA strongly supports the Capstone Report's recommendation to develop a fixed incentive for the program's initial years. Given its similarity to the Transition Incentive ("TI" or "TREC") establishing a fixed incentive that sits on top of energy compensation is the least complicated way to replace the TI program.

The TI program and the corresponding fixed incentive program is now well-understood by the solar market and also has the support of firms that finance solar projects. Eventually, regulators should consider moving toward a total compensation method or implementing compensation that pays a solar project for the actual value it brings to the grid and to society more broadly, but in the early stages of the successor a fixed incentive program is preferred and would allow regulators to implement a program under the implementation timeline the BPU has established.

B. Set Incentives for Smaller Projects Administratively & Set Incentives for Larger Projects Using Competitive Solicitations

SEIA supports the recommendation to develop administratively set fixed incentives for smaller, distributed projects and incentives based on competitive solicitations for larger, stand-alone projects feeding into the wholesale grid (a.k.a. the two-tiered system). This two-tiered approach is consistent with New York's incentive programs for distributed projects and large-scale renewables and is familiar to the industry throughout the region. Based on economies of scale, larger projects are better able to bid competitively for support and smaller projects are not. Furthermore, given the wide variety of project configurations to serve a very diverse set of solar customers, it is very difficult to design competitive solicitations for distributed projects that produce results on an apples-to-apples basis. Even within the non-residential project classes, project economics varies considerably by the size of the project, whether it is located on a rooftop or not, or based on customer needs. Utility scale projects on the other hand simply feed into the wholesale grid itself and share similar characteristics.

SEIA recommends that non-net metered, grid connected projects should be subject to competitive solicitations. All remaining net metered and community solar projects should be subject to administratively set incentives. While many states have used a 5 megawatts ("MW")$_{ac}$ dividing line to mark the distinction between small and large scale or utility scale projects, New Jersey is somewhat unique in that there is no arbitrary upper limit for the size of net metered systems. Solar systems serving customers can be sized to load. Therefore, whether or not the system is net metered should be the dividing line between projects subject to competitive solicitations.

SEIA also recommends that as regulators develop the straw proposal that both distributed and large-scale projects should be subject to improved project maturity requirements to ensure that only advanced-staged projects would be eligible for solar incentives.

C. Out of State Solar Should Be Eligible for Class I RECS

SEIA strongly supports the recommendation to allow out-of-state solar delivering into the NJ market the opportunity to sell Class I Renewable Energy Credits ("RECs"). For far too long, the out-of-state wind developers have provided clean energy to New Jersey while out-of-state solar firms have been prohibited from doing so.

This prohibition may have made sense in the early days of New Jersey's solar program but has outlived its usefulness. With a mature in-state industry sector now established, and given the state's aggressive clean energy goals, the EMP modeling showed that out-of-state solar would be an important part of the low-cost pathway to reaching the targets set by the 2018 Clean Energy Act. To reach their compliance obligations, the state's electric distribution companies ("EDCs") should be able to purchase RECs from out of state solar resources.

However, SEIA members are not seeking an additional incentive for out-of-state solar at this time as the Capstone Report proposed. As we have stated before, no further incentive support would be needed beyond authorizing the ability to sell Class I RECs. By way of balance, the BPU should set a target for the amount of out-of-state RECs that can be sold to satisfy Class I obligations, as well as how much should come from in-state resources.

D. Competitive Solicitations for In-State Large Scale Projects

Similar to New York, SEIA recommends that New Jersey holds at least annual solicitations for large-scale projects for an established number of MW per year from in-state solar projects. As part of the large-scale solar program, a rolling five-year schedule of MW procurements should be published. Under pending legislation (S.2605) supported by SEIA, companies would bid for bundled RECs, energy and capacity, ensuring savings for ratepayers. Upon selection, the firm would receive the "as bid" price. Furthermore, we recommend the BPU should evaluate bids against pre-established criteria, with price being the major driver for project selection, but also taking into consideration the in-state economic development impacts of the project, the bidding firm's experience in building similar projects, and whether the project has reached major development milestones. As part of its large-scale Renewable Energy Standard program, NYSERDA's selection criteria for projects are a good starting point.

E. Incentive Levels Should Be Differentiated by Project Types & Eventually By Utility Territory

As we have stated in several different rounds of comments to the BPU, SEIA strongly supports establishing differentiated incentives for different project types and moving away from the "one size fits all" approach of the SREC program.[1] This approach ensures that different projects receive the amount of project support they need and does not result in excessive costs to ratepayers. New York and Massachusetts have used this approach effectively to promote market growth across all segments of the solar industry.

1) Simplify the Categories & Establish "Base Rates" & Adders

[1] See Comments of the Solar Energy Industries Association, March 20, 2020. Docket Nos. Docket Nos. QO19010068 and QO20020184 – In the Matter of a Solar Successor Incentive Program Pursuant to P.L. 2018, C.17.

That said, the Capstone Report identifies discrete minimum incentive levels for nearly 20 types of project designs. This level of differentiation may swing too far in the other direction. We encourage the BPU to look to Massachusetts as an example for simplification.

Regulators at the Massachusetts Department of Energy Resources established a base rate incentive for all distributed projects, multipliers based on system sizes, and incentive adders for project configurations that meet public policy objectives. This program was a first-of-its-kind solar incentive program, and New Jersey could improve upon it by applying the principles of the MA program while simplifying program administration and design.

- First, establish separate base REC values for each of the four major categories currently contained in the New Jersey Clean Energy reports (residential, non-residential, community solar[2], and grid supply).
- For non-residential and community solar projects, establish size multipliers for different capacity ranges (i.e. the Clean Energy Program monthly installation reports): under 100 kW, 100 – 1000 kW, and over 1000 kW. For example, non-residential projects under 100 kW could receive a 150% multiplier on the base REC value.
- For all participating solar projects, establish adders (in $/MW) to the base REC value for different types of solar projects, based on location, off-taker, or some other criteria. See Table 1 for potential adder categories.

Table 1. Possible Categories for Adders

Other	Location	Offtaker
Tracker (dual/single axis)	Brownfield/Landfill	Public[3]
Pollinator-friendly	Floating solar	Low to moderate income
	Canopy/Carport	
	Agricultural	

SEIA supports the BPU creating a storage incentive for solar projects that include energy storage. At this time, we do not take a position whether this incentive should rest within the successor solar program or be a complimentary but separate program. We do note that if the energy storage incentive is a separate program, its costs would not count towards total RPS compliance costs.

SEIA does not support differentiation between direct-owned and third party owned solar systems. While the economics for direct-owned and third-party owned systems may be somewhat different, many solar firms offer both options and creating different incentives for the two types of programs adds needless complexity to the program. This may be an area to revisit in later program reviews and regulators could return to this as the program evolves.

[2] SEIA also reiterates its request from comments submitted to BPU on August 10, 2020 to clarify that projects awarded under year two community solar pilot would be eligible for TRECs, not the to-be-determined successor program under consideration in this paper.

[3] Public sector projects can be considerably more expensive based on public procurement processes. An adder, similar to the MA program, can help offset these costs and provide clean energy benefits to municipal customers.

2) Begin with Statewide Incentive Rates

At least initially, and to help finalize a program quickly, SEIA recommends using an averaged statewide base incentive rate for each the categories described above. This will support simple program administration and make it easier for solar companies to engage it. Later stages of the successor program, or a later solar program, could be better suited with incentive rates tailored to each utility territory. Tailored incentives based on each service territory would more accurately reflect the economics in each region.

III. Incentive Values/Modelling – Topic 2

A. Modeling to Support Minimum Project Economics & Modeling To Support Reaching the State's Goals

As an overarching comment, SEIA appreciates the consultant's bottom up modeling approach that informs the Capstone Report recommendations as well the use of an open source tool to reproduce the SAM cases. However, regulators must take into consideration achieving the overall state's clean energy objectives when designing a program. With this in mind, solar incentives should not be designed to ensure that 50% of the proposed projects move forward as proposed in the report. Instead incentives should be designed to reach the program goals and build markets.

B. Specific Modelling Input Critiques

SEIA provides the following critiques of the SAM model inputs that were used to provide the various representative cases:

1. System Design

a. The Capstone Report assumes capacity factors ranging from 14.2% to 16.5% depending the SAM case. Verified data – from monitored residential systems in NJ – shows that systems generate 1150 kWh/kW/yr or a 13.1% capacity factor. Overall, with the exception of the ground mount installations, the capacity factors listed in Table 15 appear to be one percent higher than industry estimates for each remaining project type.[4]

2. System Costs

a. In the residential case, member firms report inverter and module costs are $0.05 - $0.10/W higher than the levels included in the modeling for these components.

b. With regard to commercial cases, member firms report multiple differences with the modeling input.

1. Interconnection costs will be increasing over time, and the SAM model should be prospective and in line with the interconnection cost increases seen in other states.

2. Insurance costs are now higher due to COVID, and the SAM model should include an updated survey.

[4] See draft Capstone Report, Table 15, p 37.

3. For solar carports, balance of system costs are reported by member companies to have increased, due in part to higher current steel costs.

c. With regard to community solar projects, member firms believe that the modeling should account for a higher risk profile due to the need to obtain and replace subscribers over time.

3. Financial Parameters

a. Generally, the solar industry calculates project internal rate of return ("IRR") on an unlevered basis. The updated IRR modeling should reflect and unlevered rate of return of between 7.5% and 8% instead of the 9.7% levered IRR proposed in the report.

b. Using 15% discount estimate for customers to derive the PPA rate is not in line with the current market.[5] Residential discounts should be modeled between 20% to 25% and commercial and industrial ("C&I") discounts should be modeled at 25%.

c. Furthermore, based on the Capstone Report, it was unclear whether and how prevailing wage requirements for projects greater than 1 MW in size were handled in the SAM cases.

4. Incentives

a. The consultants assume a considerable amount of "safe-harboring" of the federal investment tax credit ("ITC") at the 26% level. Although the debate over delaying the ITC step-down is still underway in Congress, that outcome is uncertain and SEIA recommends the ITC input assumption should be set at 22% and aggressive safe harboring should not be assumed.

C. Modeling Output Critique

1) Approximate Target Level Incentives

The following is based on limited SEIA member responses:

i) target minimum incentive values for residential projects appears to be low and should be approximately $95/MWh - $105/MWh.

ii) target minimum incentive levels for carports also appears to be low based on higher steel costs, and certain other costs related to environmental compliance not included in the modeling.

ii) as a general comment, the minimum levels proposed for community solar projects for all three project types appears to be very low, especially the base case for ground mount projects and when considering the analysis that informed the TREC program.

2) Modelling Incentive Levels & Expected Deployment

SEIA also believes that the modeling output should be prospective as well as retrospective. If the Energy Master Plan and its 17 GW of solar goal by 2035 will be the main policy influence in creating a new solar incentive program, the modeling output should include

[5] See draft Capstone Report, p 45.

industry-wide inputs as well as project-level variables. For instance, incentive levels directly influence the percentage discount solar developers offer residential and C&I customers. Greater savings results in higher solar adoption (which aligns with how purchasing decisions occur generally).

We recommend that the Capstone Report model scenarios where the incentive levels are set in order to increase solar installation rates by differing magnitudes. To meet the EMP goal, solar adoption will need to increase to roughly 1 GW per year, more than double the most aggressive solar adoption year on record (2019).

IV. Other Issues

A. Annual Capacity Targets & Program Design

SEIA appreciates that the Capstone Report references the EMP overall 2025, 2030 and 2035 solar program targets which equates to considerably more solar from all market segments coming online to reach the state's clean energy goals.[6]

Other than several statements about the need for steady solar growth, and the need to conduct a "market potential study" however, the Capstone Report is much less clear on establishing year-by-year program capacity targets and how that capacity will be allocated among industry sectors[7] or be made available on a first-come, first- served basis. Once again, the BPU can look to other states for guidance. Both Massachusetts and New York created minimum set-asides for the residential and small commercial sectors to allow the development of a diverse industry.

Furthermore, the Capstone Report is also silent on how much capacity would be made available for large scale projects – or projects subject to competitive solicitations – or smaller scale projects that would take advantaged of fixed incentives. The BPU's Straw proposal should clearly spell out these design elements and at minimum must be clear on the amount of capacity allocated to large scale and smaller scale projects.

B. Cost cap

Although SEIA understands that the cost cap is currently under review by the BPU it remains a potentially limiting factor in program design and as the report states, the successor program and the cost cap "proceedings intertwine strongly."[8] We strongly encourage the BPU to release a straw proposal related to its cost cap review at the same time as the straw proposal on the successor program.

C. Annual & A Full Scale Triennial Reviews

SEIA supports the Capstone Report's recommendation to review incentive levels based on changing market conditions. SEIA recommends a full-scale review to be conducted every three years. In addition, the BPU should also review the incentive program once a year to ensure progress is being made toward state goals. This "quick look" would afford the BPU staff an opportunity to recommend adjustments to incentives based on unforeseen factors – such

[6] See draft Capstone Report, p. 80. Figure 14 shows the more than 1 GW of solar need per year using the Bottom Up Forecast.
[7] See draft Capstone Report, p. 79. Figure 13.
[8] See draft Capstone Report, p. 84.

as COVID 19. Any decrease in incentive levels that would result from such review should also be implemented at least 6 months from a decision to allow the market time to respond.

D. Establishing Permanent Community Solar Program Alongside Successor

SEIA recommends the Board moves to finalize the permanent community solar program rules at the same time, or within a few months of finalizing the solar successor program rules. The Board already has the authority from the 2018 Clean Energy Act to issue the permanent program rules now instead of waiting until after PY3.

The Board and Board Staff can use the solar successor program policy discussions to finalize key details about the i) incentive amount for community solar ii) duration of the incentive and iii) any additional factors or adders to encourage community solar installations. These design details are the foundation of the permanent community solar program.

The primary benefit of establishing the permanent community solar program now is establishing policy certainty and creating a stable environment for project development. With a complete picture of the multi-year roadmap for the solar successor incentive and community solar program design details, solar firms can pursue projects and sites, work to sign up subscribers and generally submit projects for approval that are more mature.

F. Conclusion

Thank you for your consideration of these responses. We look forward to workshopping many of the subjects discussed in these comments. Any questions should be directed to:

David Gahl
Senior Director of State Affairs
Solar Energy Industries Association
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PART II – Answers to Specific BPU Questions

Request for Comments

Cadmus has put forth a number of program design suggestions, policy considerations, and overall recommendations. Staff has identified a number of specific questions below but encourages stakeholders to additionally share their assessment of these program and policy recommendations beyond the focus of these questions.

Topic 1: Recommended Incentive Structure Design

Based on stakeholder engagement to date, Cadmus presents three incentive "types" in the draft
Capstone Report that could be used to inform the design of the Successor Program (see section
3.3, p. 16 – 25):

- Total Compensation: similar to a contract-for-differences model, a total compensation incentive structure calculates all the revenue streams generated by a representative project to arrive at a complementary performance-based incentive amount that may change over time as revenues change to achieve an administratively determined investment target. The incentive value is added onto these revenues to reach a total fixed compensation value.

- Fixed Incentive: a fixed incentive structure is one in which the value of the performance- based incentive is fixed over time, similar to the current Transition Incentive Program.

- Market-Based RECs with Floor: a market-based REC is an incentive that varies over time above a pre-defined floor price, based on the supply of RECs produced by eligible solar projects, and the demand set by the RPS.

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively- set incentives for smaller projects.

    a. Do you agree with this recommendation? Why or why not?

SEIA supports the recommendation to develop administratively set fixed incentives for smaller, distributed projects and incentives based on competitive solicitations for larger, stand-alone projects feeding into the wholesale grid (a.k.a. the two-tiered system). This two-tiered approach is consistent with New York's incentive programs for distributed projects and large-scale renewables and is familiar to the industry throughout the region. Based on economies of scale, larger projects are better able to bid competitively for support and smaller projects are not. Furthermore, given the wide variety of project configurations to serve a very diverse set of solar customers, it is very difficult to design competitive solicitations for distributed projects that produce results on an apples to apples basis. Even with the non-residential project classes, projects economics varies considerably by the size of the project, whether it is located on a rooftop, or the specific customer

needs. Utility scale projects on the other hand simply feed into the wholesale grid itself and share similar characteristics.

b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

SEIA recommends that non-net metered, grid connected projects should be subject to competitive solicitations. All remaining, net metered and community solar projects should be subject to administratively set incentives. While many states have used a 5 MW_{ac} dividing line to mark the distinction between small and large scale or utility scale programs, New Jersey is somewhat unique in that there is no arbitrary upper limit for the size of net metered systems. Solar systems serving customers can be sized to load. Therefore, whether or not the system is net metered should be the dividing line between projects subject to competitive solicitations. (See II B. in the above comments).

i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small-scale project.

All net metered and community solar projects should be subject to administratively set incentives.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

By using net metering as the diving line, the BPU would not need to wrestle with the question of separating out wholesale and retail values.

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

Yes.

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

Not applicable.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

Grid supply projects located on landfills and brownfields should be able to take advantage of the adders proposed earlier in this document.

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

Not applicable.

2) If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

SEIA supports the Capstone Report's recommendation to review incentive levels based on changing market conditions. SEIA recommends a full-scale review of incentive levels and market conditions to be conducted every three years. In addition, the BPU should also review the incentive program once a year to ensure progress is being made toward state goals and to be able to respond to major events. This "quick look" would afford the BPU staff an opportunity to recommend adjustments to incentives based on unforeseen factors – such as COVID 19 or the establishment of new solar import tariffs by trade officials in Washington DC. Any decrease in incentive levels that would result from such review should also be implemented at least 6 months from a decision to allow the market time to respond. (See IV.C.)

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

By reviewing the incentive levels and compensation every three years, regulators would be able to adjust incentives based on changing market conditions and respond to the areas of uncertainty identified in the Capstone Report.

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

SEIA support the 15-year qualification life and this should be set as a standard for all administratively set incentives.

3) If NJBPU were to implement incentives based on a competitive solicitation:

a. How should the competitive solicitation be designed? What evaluation criteria should NJBPU implement in administering the solicitation? Should project selection be based exclusively on price (i.e., value of the incentive), or should it include consideration of other criteria (and if so, which ones)?

Similar to New York, SEIA recommends that New Jersey holds at least annual solicitations for large scale projects for an established number of MW per year. As part of the large-scale solar program, a rolling five-year schedule of MW procurements should be published. Similar to pending legislation (S.2605), companies would bid for RECs, energy and capacity and upon selection the firm would receive the "as bid" price. Furthermore, the BPU would evaluate bids against pre-established criteria, with price being the major driver for project selection, but also taking into considering the in-state economic development impacts of the project, the proposing firms experience in building similar projects, and whether the project has reached major development milestones. (See II D in the above comments).

b. Cadmus studied incentive structures for the environmental attributes of a given project (i.e., unbundled the environmental attribute, with projects remaining merchant on energy and capacity values). Please discuss project finance-ability of this incentive structure, as opposed to a bundled incentive structure, addressing the implications to price and risk to ratepayers.

A bundled contract (RECs, energy and capacity) drives down the cost of the project and generally improves the financing for solar projects, decreasing the impact on ratepayers when compared to other procurement options. Analysis conducted by the New York State Energy Research and Development Authority in 2015 showed considerable cost reductions with this kind of approach.[9]

c. How would NJBPU set the incentive value using a competitive solicitation? In particular, please discuss the pros and cons of a pay-as-bid system or a single-clearing price system.

On the one hand, a single clearing price mechanism protects market participants against gaming behavior by bidders and protects against low-ball bids entered simply to win awards. On the other hand, single clearing prices set for the last MW that clears an auction paid to all bidders can also result in windfalls to developers that have considerably lower costs. On balance, and given the cost cap restrictions, a pay-as-bid system coupled with very strong project maturity requirements for bidders should avoid over-payment to bidders, avoid windfall profits and ensure projects reach completion.

d. Should NJBPU implement a minimum and/or maximum bid value in order to prevent overly aggressive or overly high bids?

e. How often should NJBPU hold solicitations? How can NJBPU mitigate the risk of "stop and start" development cycles due to the nature of punctual solicitations? For example, should NJBPU consider implementing an "always on" incentive program in the context of a competitive solicitation? How would such an incentive be implemented?

[9] See "Large-Scale Renewable Energy Development in New York: Options and Assessment" New York State Energy Research and Development Authority, June 2015. Available at: https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/Large-Scale-Renewable-Energy-Development.pdf

SEIA recommends that New Jersey holds at least annual solicitation for large scale projects for an established number of MW per year.

f. Should NJBPU account for differences in project cost for different project types (e.g., project type or site, in-state vs. out-of-state)? If so, how?
A simple approach would be to allow out-of-state solar to sell RECs into the market and provide a more robust incentive for in-state resources along the lines we have described.

g. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case. Is this the appropriate term for incentives determined via a competitive solicitation?

Yes.

h. New Jersey's solar incentive programs have historically been delivered via a program established by NJBPU. Should NJBPU consider instead delivering the incentives through project-specific contracts with the EDCs? Would this approach reduce financing costs for developers? Please discuss the pros and cons of both approaches, including the potential benefits of a contract filed with the Federal Energy Regulatory Commission and imputed debt considerations.

For the competitively bid grid scale projects, we strongly recommend firms submit bids of RECs, energy and capacity and execute those agreements directly with the EDCs. This approach has proven to provide low cost power to utilities and would be a prudent cost saving approach given the cost caps.

4) How can NJBPU prevent queue siting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing marketwic circumstances and enable the integration of emerging technologies and new solar business models.

For all three of these questions, our previous responses apply. SEIA supports the Capstone Report's recommendation to review incentive levels based on changing market conditions. SEIA recommends a full-scale review of incentive levels and market conditions to be conducted every three years. In addition, the BPU should also review the incentive program once a year to ensure progress is being made toward state goals and to be able to respond to major events. This "quick look" would afford the BPU staff an opportunity to recommend adjustments to incentives based on unforeseen factors – such as COVID 19 or the establishment of new solar import tariffs by trade officials in Washington DC. Any decrease in incentive levels that would result from such review should also be implemented at least 6 months from a decision to allow the market time to respond. (See IV.C.)

a. Generally, how can this flexibility be incorporated into the design of the Successor Program?

b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?

c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

SEIA strongly supports the recommendation to allow out-of-state solar delivering into the NJ market the opportunity to sell Class I Renewable Energy Credits ("RECs"). For far too long, the out-of-state wind developers have provided clean energy to New Jersey while out-of-state solar firms have been prohibited from doing so.

This prohibition may have made sense in the early days of New Jersey's solar program but has outlived its usefulness. With a mature in-state industry sector now established, and given the state's aggressive clean energy goals, the state Energy Master Plan ("EMP") modeling showed that out-of-state solar would be an important part of the low-cost pathway to reaching the targets set by the Clean Energy Act. To reach their compliance obligations, the state's electric distribution companies ("EDCs") should be able to purchase RECs from out of state solar resources.

However, SEIA members are not seeking an additional incentive for out-of-state solar at this time as the Capstone Report proposed. As we have stated before, no further incentive support would be needed beyond authorizing the ability to sell Class I RECs. By way of balance, the BPU should set a target for the amount of out-of-state RECs that can be sold to satisfy Class I obligations and how much should come from in-state resources. (See II.C.)

a. The Energy Master Plan found that out-of-state utility scale resources deliverable to New Jersey are part of the least-cost path to reaching 100% clean energy. Do you agree or disagree that such projects should be eligible to participate in New Jersey's solar program?

b. Please address any commerce clause or other legal issues associated with restricting the ability of out-of-state utility-scale projects to compete in the competitive solicitation.

c. Should NJBPU require that such projects respect transmission limits into New Jersey? If so, how should such a requirement be designed?

d. Should NJBPU require that such projects sell their energy into New Jersey (i.e., deliver into a New Jersey EDC service territory)? If so, how should such a requirement be designed?

Topic 2: Modeling

The modeling conducted by Cadmus and described in the draft Capstone Report was largely informed by the assumptions used in the Transition Incentive program modeling, updated cost data from projects in the SRP, and subsequent stakeholder engagement such as the March 2020 Successor Program cost survey. Staff is interested in stakeholder feedback on Cadmus' assumptions and modeling choices. Staff has identified a number of

specific questions below, but encourages stakeholders to share their assessment of the model and modeling assumptions beyond the focus of these questions.

1. System Design

a. The Capstone Report assumes capacity factors ranging from 14.2% to 16.5% depending the SAM case. Verified data – from monitored residential systems in NJ – shows that systems generate 1150 kWh/kW/yr or a 13.1% capacity factor. Overall, with the exception of the ground mount installations, the capacity factors listed in Table 15[10] appear to be one percent higher than industry estimates for each remaining project type.

2. System Costs

a. In the residential case, member firms report inverter and module costs are $0.05 - $0.10/W higher than the levels included in the modeling for these components.

b. With regard to commercial cases, member firms report multiple differences with the modeling input.

1. Interconnection costs will be increasing over time, and the SAM model should be prospective and in line with the interconnection cost increases seen in other states.

2. Insurance costs are now higher due to COVID, and the SAM model should include an updated survey.

3. For solar carports, balance of system costs are reported by member companies to have increased, due in part to higher current steel costs.

c. With regard to community solar projects, member firms believe that the modeling should account for a higher risk profile due to the need to obtain and replace subscribers over time.

3. Financial Parameters

a. Generally, the solar industry calculates project internal rate of return ("IRR") on an unlevered basis. The updated IRR modeling should reflect and unlevered rate of return of between 7.5% and 8% instead of the 9.7% levered IRR proposed in the report.

b. Using 15% discount estimate for customers to derive the PPA rate is not in line with the current market.[11] Residential discounts should be modeled between 20% to 25% and commercial and industrial ("C&I") discounts should be modeled at 25%.

c. Furthermore, based on the Capstone Report, it was unclear whether and how prevailing wage requirements for projects greater than 1 MW in size were handled in the SAM cases.

4. Incentives

a. The consultants assume a considerable amount of "safe-harboring" of the federal investment tax credit ("ITC") at the 26% level. Although the discussion over delaying the ITC

[10] See draft Capstone Report, Table 15, p 37.
[11] See draft Capstone Report, p 45.

step-down is still under discussion in Congress, that outcome is uncertain and SEIA recommends the ITC input assumption should be set at 22% and aggressive safe harboring should not be assumed.

7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

   a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

   b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

   c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

   d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

   e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

   f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p.50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Other than several statements about the need for steady solar growth, and the need to conduct a "market potential study" however, the Capstone Report is much less clear on establishing year-by-year program capacity targets and how that capacity will be allocated among industry sectors[12] or be made available on a first-come, first- served basis. Once again, the BPU can look to other states for guidance. Both Massachusetts and New York

[12] See draft Capstone Report, p79. Figure 13.

created minimum set-asides for the residential and small commercial sectors to allow the development of a diverse industry.

Furthermore, the Capstone Report is also silent on how much capacity would be made available for large scale projects – or projects subject to competitive solicitations – or smaller scale projects that would take advantaged of fixed incentives. The BPU's Straw proposal should clearly spell out these design elements and at minimum must be clear on the amount of capacity allocated to large scale and smaller scale projects.

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

SEIA does not support differentiation between direct-owned and third party owned solar systems. While the economics for direct-owned and third-party owned systems may be somewhat different, many solar firms offer both options and creating different incentives for the two types of programs adds needless complexity to the program. This may be an area to revisit in later program reviews and regulators could return to this as the program evolves.

12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

13) Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

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Ada Camacho, Secretary of the Board
New Jersey Board of Public Utilities
44 South Clinton Ave
Trenton, NJ 08625

September 9, 2020

Re: Successor Program Capstone Report Docket No. QO20020184

Dear Ms. Camacho,

The Successor Program Capstone Report is an important first step in trying to fix our solar program. New Jersey used to be a national leader when it came to solar, but over the last decade we lost our lead. The new solar program needs to transition away from Solar Renewable Energy Certificates (SRECs) and move toward long-term contracts. It also needs to get rid of the cost cap and should have separate incentives for each solar program to account for different costs. We also urge the Board of Public Utilities to look at other funding mechanisms and regulations to push for solar programs to get done. We need to ensure that we can get this new program in place quickly to help create more jobs and reduce our greenhouse gases.

Incentive Types Chosen: The Cadmus team selected three incentive types: total compensation, fixed incentive, and market-based RECs with floor. [The ITC steps down at prescribed levels: 26% in 2020, 22% in 2021, and thereafter 10% for businesses and 0% for residential].

The Capstone Report looks at three different incentive "types" that could be used in the Successor Program. When looking at incentives, it is important to consider using separate incentives for different types of solar projects. BPU needs to study the SRECs program and have the credits reflect the actual cost of certain sectors of the solar market, differentiating between third-party ownership and direct ownership. For example, it costs more to build on a landfill than to do a third-party solar project on a roof.

The BPU should establish a rate of return, for example 10% per program area. Each area has different costs; therefore, each should have a project-specific set rate of return to save ratepayers money and keep us under the cap. These program areas include utility, scale, third-party, direct-purchase, residential, and commercial. Using separate incentives would help increase access to solar for different customer classes. As we get to a grid approach and prices come down, we can transition to an incentive-free market.

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Operating Costs: The total cost for commercial direct host solar projects was anywhere from $17/year for projects up to 100 kW to $5,000/year for projects over 1 MW. The total cost for third-party commercial projects was calculated to be anywhere from $1,000/year under 100 kW to $55,000/year for 1 MW and greater. Community solar total costs were calculated to be $23,000/year for 100 kW to 1 MW up to $77,500/year for 3,500 kW ground. Grid costs were calculated to be $60,000/year for roofs, $95,337/year for ground out-of-state supply, and $106,337/year for ground in-state supply. Residential solar operating costs were calculated to be $17/year.

In order to have grid- or utility-scale solar, our next solar program needs to include long-term contracts instead of SRECs. New Jersey also needs to expand net metering. New Jersey cannot achieve our clean energy goals house by house, rooftop by rooftop. BPU needs to do an assessment of available land to meet renewable energy goals. This could include solar on landfills, brownfields, sound barriers along highways and the NJ Turnpike, abandoned lands, corporate office lawns, parking lots, and more.

New Jersey's utility economic model is based on how much power they sell; this is unsustainable and will only lead to more waste and pollution. We encourage the BPU to look at the solar plans of New York, Massachusetts and Maryland. New York has administratively determined short-term incentives that are differentiated by size. Massachusetts prices by competitive auction initially and long-term incentives to bundle with energy costs.

New Jersey Solar Capacity Goals: The solar capacity goals in the *2019 New Jersey Energy Master Plan* includes a final target of 32,200 MW by 2050 (under the Least Cost scenario). One of the milestone capacity targets is 12,188 MW by 2030.

Based on the Report, the current solar target is flat for the next 5 years at 200 MW/year. As such, we would have to dramatically accelerate the rate of solar additions after 2026 in order to reach the state's targets, which risks missing our goals, undermining the solar program. We need to aim for at least 500 MW per year to reach our clean energy goals. The Energy Master Plan calls for a final target of 32 GW of solar by 2050, with a milestone capacity target of 12 GW by 2030. New Jersey is currently only at 5 GW. The state needs to do more than 15 GW by 2035 in order to reach our clean energy goals of 100% renewable and zero-carbon by 2050.

Installed Capacity Falling Off: Legacy SREC capacity will decline over time. It remains steady in the near term, but by 2035 it begins to decline more noticeably. Legacy SREC capacity could fall off completely in the 2040s.

The Board can ensure continued cost reductions through competition, examining the costs of solar going in, administrative price setting, and increasing the efficiency of new technology. They must be sure they

are not giving out rebates or SRECs at a higher rate of return than justifiable. As the price of solar goes down and solar panel efficiency goes up, this becomes even more critical. They should also look at year-to-year pacing on incentives. If we try to go back to reduce levels of already-built projects, there will be legal issues and it could hurt investment in our solar markets.

We also believe that we should transfer residential solar out of SRECs entirely. We can dedicate money from the Societal Benefits Charge (SBC) for one-time rebates. This should be limited to net-metered systems, and possibly just residential and community solar projects, so that the limited funding could be spread over as many projects as possible. Proceeds from Regional Greenhouse Gas Initiative (RGGI) auctions could also be used as a supplemental funding source, outside of the cost cap.

Community Solar: Community solar installations are limited to 75 MW per year for the first three years. Afterward, Cadmus projected that 150 MW per year is installed.

Because the Community Solar program is a state pilot program, it is limited to 75 MW of installations per year for the first three years. We would like to see the program doubled from 75 MW to 150 MW a year. We would also like to see the pilot program expanded. A project of 5 MW only powers a little over 800 homes. We should allow for projects that are 10 MW or greater, even up to 20 MW.

New Jersey should be creating a full community solar program such as other states have, so that we can advance solar power for everyone in New Jersey. Maryland has a 30% carve-out for community solar for projects where 20% of the output serves low- and moderate-income communities and Massachusetts has roughly 23%. We ideally want at least 20% set aside for community solar in New Jersey.

We also need to make sure we keep community solar costs down in low-income and minority communities. These projects should be subsidized using the Clean Energy Fund to make the program more accessible for people living in these communities that need the benefits from solar the most. It is also important that the benefits of solar are directed to these communities, including jobs. The Office of Clean Energy Equity should be used to direct solar job training to overburdened communities. It is critical to make sure that everyone can benefit from solar energy.

Cost Cap: The Successor Plan is being designed to comply with the cost cap and maintain flexibility to incorporate findings of the cost cap proceeding.

The BPU is looking at how to set MW targets while maintaining compliance with the legislative cost caps. However, we believe that it is critical for the BPU to recommend getting rid of the cost cap now because the cost cap hurts the solar industry and favors fossil fuels. Sierra Club opposed the cost cap language in

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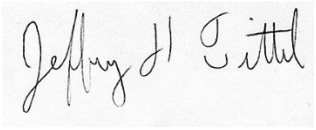
the legislation because we are so concerned about the external costs of electricity production from fossil fuels, and the need to ramp up clean energy as quickly as possible.

New Jersey is currently only generating 200-300 MW per year. New Jersey needs to get rid of the cost cap to allow for the 500-600 MW per year that we need to reach our clean energy goals. It is important to come up with a cost-effective solution that works for all of New Jersey. This includes looking at other funding mechanisms and regulations to push for solar programs to get done.

This Draft Capstone Report on NJ's Solar Successor Program is the first step toward fixing New Jersey's solar program. Improving solar energy in the state will make our environment cleaner, fight climate change, and increase green jobs. We need to get rid of the cost cap and expand our solar program so that we can reach 15 GW by 2035. Expanding our solar program will help save ratepayers money and deal with climate change while growing our economy. We must expand our solar program so that we can reach our clean energy goals and be a leader in clean energy once again.

If you have any questions or would like to discuss this matter further, please feel free to call me at (609) 558-9100.

Sincerely,



Jeff Tittel
Director, New Jersey Sierra Club

Mark Schottinger
General Counsel
markfs@solarlandscape.com
908-433-5727

September 8, 2020

Aida Camacho-Welch
Secretary
New Jersey Board of Public Utilities
solar.transitions@bpu.nj.gov

Via Email

Re: ***Successor Program Capstone Report – Docket No. QO20020184***

Dear Ms. Camacho-Welch,

Solar Landscape LLC is pleased to provide the following comments in response to the Request for Comments regarding the Successor Program Capstone Report.

Thank you,

Mark F. Schottinger
General Counsel
Solar Landscape LLC
markfs@solarlandscape.com
908-433-5727

Solar Landscape, LLC
522 Cookman Ave., Suite 3
Asbury Park, NJ 07712
(844) 766-2769

September 8, 2020

To Whom It May Concern:

Solar Landscape is an Asbury Park, New Jersey-based company specializing in medium- and large-scale solar project development, design, installation, and long-term asset management. Solar Landscape is currently working on bringing to commercial operation 8 projects awarded in Community Solar Program Year 1, in addition to developing and building behind-the-meter projects, mainly on large commercial and industrial rooftops and schools.

Over the past several years, Solar Landscape has installed over 120 MW across more than 85 projects, ranging in size from 50 kW to 7 MW and primarily located on warehouses, factories, shopping centers, schools and municipal properties. As a self-performing general contractor, we've proudly employed over 100 New Jersey residents to date, and we are honored to have been recognized as one of New Jersey's 50 fastest growing companies.

Our focus on commercial and industrial ("C&I") roof-mounted systems is in large part driven by our firm belief that these projects offer more societal benefit than any other type of PV system or, for that matter, any other form of power generation. These projects make use of surfaces with few alternative uses on pre-disturbed land, which is optimal for the environment. They are largely out of sight, which is optimal for local residents. They are the largest type of rooftop system, which is cost-effective and therefore optimal for ratepayers. And they benefit New Jersey businesses and schools on whose rooftops they operate.

Solar Landscape fully supports the Board's efforts to design an equitable and effective solar incentive to succeed the TREC and commends the Board for its progress thus far. We offer the following comments as requested in Docket QO20020184.

Sincerely,

Mark Schottinger
General Counsel

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STAKEHOLDER INTRODUCTION

Solar Landscape is an Asbury Park, New Jersey-based company specializing in medium- and large-scale solar project development, design, installation, and long-term asset management. Over the past several years, Solar Landscape has installed over 120 MW across more than 85 projects, ranging in size from 50 kW to 7 MW and primarily located on warehouses, factories, shopping centers, schools and municipal properties. As a self-performing general contractor, we've proudly employed over 100 New Jersey residents to date, and we are honored to have been recognized as one of New Jersey's 50 fastest growing companies.

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Solar Landscape fully supports the Board's efforts to create a smooth transition to a successor incentive regime that will ensure New Jersey cost-effectively meets its ambitious clean energy targets. To that end, we submit the following comments in relation to the revised Straw Proposal shared on October 3, 2019.

SUMMARY OF COMMENTS

Our recommendations are guided by our belief that the TREC represents a significant design improvement over the SREC and that predictability, smoothness and transparency are paramount in any incentive design. We think the following design principle would best achieve this:

- An **adminstratively set fixed-price incentive for all non grid-supply projects** with similar factorization to the TREC but also, in cases where revenue is impacted e.g. community solar, different incentive levels in different EDC territories. A **two-year review period** could be used to recalculate incentive levels based on market developments.

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RESPONSES TO SPECIFIC QUESTIONS POSED BY STAFF

1) The draft Capstone Report recommends the implementation of a bifurcated incentive structure, with a competitive solicitation for utility-scale projects and fixed, administratively set incentives for smaller projects.

a. Do you agree with this recommendation? Why or why not?

b. If you agree with this recommendation, how should NJBPU divide market segments between those projects eligible for the competitive solicitation and those projects eligible to receive the administratively set incentives?

i. Do you view project size as the appropriate means of differentiating between competitive solicitations and administratively-set incentives? If so, please identify what NJBPU should consider to be the size limit between a utility-scale and small scale project.

ii. If project size is used to differentiate incentive-types, how should NJBPU develop a competitive solicitation for utility scale projects that takes into account the different revenues that net metered projects earn compared to those that sell at wholesale?

iii. Alternatively, should all net metered projects rely on administratively-set incentives instead?

iv. If you recommend a different option for establishing criteria to distinguish projects that qualify for competitive solicitations versus fixed incentives, please elaborate on your recommendation.

v. How should projects that meet the requirements of the Solar Act subsection (t) (i.e., grid-supply projects located on landfills and brownfields) be treated?

c. If you disagree with the concept of a bifurcated competitive solicitation and fixed, administratively-set incentive approach, what would you suggest as an alternative incentive structure? Please be as specific as possible.

Solar Landscape supports the concept of a bifurcated incentive structure defined not by project size, but by project type—with a competitive bid process for utility-scale grid supply projects and administratively set incentives for all other projects, including behind-the-meter (BTM) and community solar (CS) projects.

While project economics are undoubtedly shaped by project size, Solar Landscape believes this is generally linear, all else equal. As a result, selecting a certain capacity threshold below which projects qualify for administratively set incentive, and above which projects must participate in competitive solicitation, adds unnecessary artificiality to the solar marketplace in New Jersey.

Rather than focus on size, the delineation of incentive types should focus on project type, which can already be a source of material differences in economics (all else equal), and thus also makes an appropriate categorizing logic for incentive design. Solar Landscape believes that a logical bifurcation point would be to create a separate incentive structure for utility-scale grid supply projects and have all other projects qualify for administratively set incentives at different levels, depending again on project type.

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2) If NJBPU were to implement administratively-set incentives:

a. How often should the incentive value be re-evaluated and potentially reset? Please comment on the mechanism by which NJBPU should consider modeling and analysis to inform future deliberations regarding incentive values.

b. Should NJBPU differentiate the incentive value (similar to the TREC factors)? If so, on what basis? Please discuss whether NJBPU should differentiate based on the following: (i) customer classes; (ii) installation type / project location; (iii) EDC service territory; (iv) project size; or (v) other.

c. How is an administratively-set incentive consistent with NJBPU's goal for continually reducing the cost of solar development for ratepayers, in line with the reductions in the cost of solar development?

d. In the draft Capstone Report, Cadmus used a 15-year Qualification Life (i.e., incentive term) as the base case, with the exception of residential net metered direct-owned projects, for which the incentive term was set at 10 years based on project payback period. Please comment on these respective proposals regarding length of qualification life, including what changes you would suggest, if any, and why.

Solar Landscape agrees with the concept of a factorized, fixed-price incentive structure (like the TREC), with incentive values recalculated every 2 years. Solar Landscape believes this is an appropriate balance of managing incentive levels and managing administrative costs and is therefore a cost-effective approach that is good for both ratepayers and the development of clean energy in New Jersey.

Solar Landscape believes 2 years is an appropriate period between recalculations of the incentive level—enough time for project economics to have evolved, and to manage administrative costs, but not so much time that incentive levels will have become grotesquely oversized.

Solar Landscape believes it is critical to the incentive design that Staff build and improve on the already commendable structure of the TREC—especially the factorization by project type. Consideration should be given to:

- *i) Offtake type/customer class, to ensure customer classes (e.g., low- and moderate-income households) are not unduly disadvantaged,*
- *ii) Installation type/location, to account for differential build costs, and*
- *iii) EDC service territory, but only for project types where this attribute impacts project economics (e.g., for Community Solar through varied approaches to rate design and rate levels)*

Finally, Solar Landscape supports a 15- or 20-year incentive structure for non-residential projects. A 15-year structure provides a long-term source of reliable cash flow for projects without posing the risk of having a longer term than what public offtakers like schools and municipalities are allowed to contract for through a PPA, which would put the last years of incentive value at risk of being forfeited by the project.

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3) On competitive solicitation design:

No comment. Solar Landscape does not support this approach except for utility-scale grid supply projects, which we have limited experience with to date.

4) How can NJBPU prevent queue sitting or speculative project bids? In other words, what maturity requirements should NJBPU implement? Please consider, for example, minimum bidding requirements, escrow payments, etc. Should NJBPU require different maturity requirements for projects entering the competitive solicitation process versus the administratively-set incentive levels?

One approach to reduce the appeal of queue sitting is to ensure that incentive levels are not assigned via a capacity-block incentive structure. While it may make economic sense to tie recalculation of incentives to having reached certain capacity targets, this is a serious disadvantage to that approach and is why Solar Landsacpe recommends a time-based approach to recalculating incentive levels (every two years, as discussed above).

Other approaches Solar Landscape supports are requiring deposits (e.g., $10/kW), and requiring achievement of some basic development milestones including site control, demonstration of available interconnection capacity, etc. These will be discussed further in future comments in response to Staff's first Straw Proposal for the Successor REC.

5) The draft Capstone Report recommends that NJBPU maintain flexibility in program design, in order to respond to changing market circumstances and enable the integration of emerging technologies and new solar business models.

a. Generally, how can this flexibility be incorporated into the design of the Successor Program?
b. How should changes in the federal Investment Tax Credit or carbon-pricing policies be incorporated into future incentive level resets?
c. How should NJBPU account for potential changes to the PJM and FERC regulatory structures and capacity markets?

Solar Landscape believes a two-year recalculation cadence provides a good basis to keep the incentive level in line with the current economics of solar development. However, Staff could also allow for ad hoc recalculations in certain specified events, such as a policy change at the federal level. However, we stress that predictability and smoothness are paramount for the Successor REC and we therefore believe any ad-hoc recalculation should only be allowed under clearly specified circumstances.

6) The draft Capstone Report includes a SAM case for out-of-state utility-scale solar. Should NJBPU provide incentives to out-of-state utility solar through the Successor Program? If so, how, and under what conditions?

No comment.

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7) Is Cadmus' breakdown of SAM cases, as identified in Table 12 (p. 32), appropriate? Why or why not?

Staff should consider a case for Community Solar carport project type, as this is another viable way to enhance the use of developed areas to serve the community's renewable energy goals.

8) Please provide feedback on Cadmus' SAM model inputs, as identified in the draft Capstone Report and the supplemental modeling spreadsheet. In particular, please provide feedback on the following assumptions:

a. Modeled system size (Table 13, p. 34). For example, how could the adoption of the 2018 building codes and subsequent changes to residential systems setback requirements impact system size?

b. Installed costs (Table 17, p. 39). What are factors that could impact installed costs moving forward? Has Cadmus correctly identified installed cost assumptions for the out-of-state solar and community solar SAM cases?

Regarding installed cost of community solar versus non-community solar with same siting, Solar Landscape believes the $0.20/W added cost of community solar may be too low. Community Solar project costs may not adequately capture initial costs of obtaining subscribers. An added expense is included in the O & M for subscriber maintenance/management, but initial outreach to fully subscribe a project has emerged as a significant driver of upfront cost (upwards of $0.15/W); other unique costs include fulfilling commitments to the BPU in community solar applications for community enrichment initiatives like job training and community engagement.

Module cost assumptions also appear optimistic as many tier 1 manufacturers are quoting modules at .35/Watt or even higher, for higher watt class modules (400 W+), which are used to maximize system energy production.

c. Financial parameters, including interest rates and loan terms (Tables 19 and 20, p. 43).

d. Revenue assumptions. In particular, please comment on the ability to quantify projects' demand charge reduction (see Cadmus' modeling note on p. 45).

If demand charge reductions are applied to DO and TPO cases for behind the meter projects, these energy values should not carry through to community solar as these projects will not be able to offset demand of subscriber loads in the same manner as a behind the meter project.

Additionally, energy rate growth at ~2.5% appears too aggressive, and we instead recommend assuming a rate of 1 to 1.5%.

e. Specific energy production and energy degradation rate (see Cadmus' modeling note on p. 61).

The assumed specific energy production of systems is too high. Loss factors applied by financiers and third-party project owners are typically higher for items like shading, soiling, mismatch, light induced degradation, etc. Furthermore, Rooftop systems are often designed to

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optimized to maximize production per sq. ft, since space may be limited, and thus they will have a lower tilt angle (5 degrees) and higher row-to-row shading since they are more densely packed.

f. Investment Tax Credit ("ITC"). Should NJBPU assume that non-residential projects are able to safe harbor under the 2020 ITC at 26% (similar to the approach adopted in 2019 for the Transition Incentive Program)?Are the TI-ACP schedules proposed to be associated with each compliance entity option appropriate? If modifications are required, how should the schedules be adjusted and why?

Regarding the ITC, Staff should not assume the 2020 ITC rate has been preserved. Some percentage of projects will have safe harbored the 2020 ITC rate, but Staff's focus should be on providing an adequate incentive for additional projects to be built and not only those that benefit from a stronger tax credit. Furthermore, for community solar projects, safe harboring is challenge for developers since the program's round 2 pilot timing and the overall program size are still unclear. Community solar developers would have to take significant risks to safe harbor product without knowing what their anticipated project pipeline will look like.

Additionally, for any project where safe harbor is assumed, the project will incur a higher installation cost as there are expenses associated with early procurement of product for safe harboring, such as securely storing equipment.

9) Do you agree with Cadmus' derivation of wholesale and energy prices, as presented in Table 21 (p. 46)? If not, how would you recommend modifying Cadmus' approach?

No comment.

10) Cadmus provided different approaches to modeling the MW targets (see section 4.3, p. 50 - 56). How should NJBPU set the MW targets, while maintaining compliance with the legislative cost caps?

Solar Landscape's only comment on this topic is that not all MW's should be considered equal, and that Staff should therefore continue to incentive certain types of projects over others (e.g,, community solar over greenfield ground-mounted projects).

11) Cadmus recommends that NJBPU consider whether to differentiate treatment between direct-owned ("DO") projects and third-party owned ("TPO") projects. Please comment.

Solar Landscape does not have a strong opinion here, but we believe this may insert unnecessary complexity into the incentive design, as we believe the project economics are not dramatically impacted by this attribute of a solar project.

12) Please comment on the transparency and replicability of Cadmus' incentive modeling: if NJBPU were to implement an administratively determined incentive, could this model serve as the basis for setting the incentive value going forward? If not, what changes would need to be made to make it suitable?

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In Solar Landscape's opinion, the transparency and replicability of Cadmus' modeling are strong and the reliance on the SAM model is a good approach. We reserve more detailed comments on the actual assumptions made for the forthcoming Straw Proposal.

13) Please provide general feedback on Cadmus's modeling inputs, methodology, and assumptions not already addressed in a previous question.

Solar Landscape believes the following assumptions should be reconsidered:

1. *All Community Solar projects may incur property tax payments, including rooftop projects. The assumption that the system's energy will be offsetting the energy use of the facility where it is located is not necessarily true. Since community solar projects are scored higher for offsetting LMI residential subscribers, tenants of the large buildings where rooftop community solar projects are installed may not be targeted as subscribers.*

2. *PPA Price Escalation rate assumptions for community solar are probably too high at 2.46%. The energy portion of the underlying subscriber's utility rates may not grow that fast, and subscribers want to lock in rates where they are assured it will always be lower than their grid expense. Thus, in order to make a compelling offer to subscribers, developers need to offer fixed rates or lower escalators to give a subscriber confidence that their community solar subscription will remain cheaper than grid power in the long term.*

3. *As mentioned above, installation costs for community solar projects may not appropriately estimate the initial expense of fully subscribing the project, which can be significantly more expensive than a traditional PPA with only a single offtaker. Developing support infrastructure for a high volume of subscribers is costly.*

4. *Installation costs may also not factor in varying interconnection expenses over time. The successor program framework only captures interconnection expenses as seen in past installations, when there has been ample capacity on the grid to interconnect solar. As more solar is installed over time, these costs will continue to increase.*