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
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Director of Corporate Strategy

Cc: Mark F. Valori, Vice President
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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.