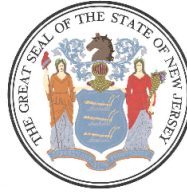


State of New Jersey
Governor Philip D. Murphy
Lt. Governor Sheila Y. Oliver



Joseph L. Fiordaliso
President

Mary-Anna Holden
Dianne Solomon
Upendra Chivukula
Bob Gordon
Commissioners

Board of Public Utilities



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NOTICE¹

IN THE MATTER OF COMPETITIVE SOLAR INCENTIVE ("CSI") PROGRAM PURSUANT TO P.L. 2021, C.169

Docket No. [QO21101186](#)

Pursuant to the Open Public Meetings Act, N.J.S.A. 10:4-6 et seq., Staff of the New Jersey Board of Public Utilities ("NJBP" or "Board") hereby gives notice and invites all interested parties and members of the public to participate in three virtual Stakeholder Meetings to discuss the Staff Straw Proposal for the design of the Competitive Solar Incentive ("CSI") Program pursuant to the Solar Act of 2021 (L. 2021, c. 169, or "Act"). The CSI Program Straw Proposal complements the Straw Proposal on Solar Siting, which was released for public comment on March 16, 2022.

Board Staff (Staff), in cooperation with its consultant Daymark, is issuing the CSI Program Straw Proposal to seek public input on Staff's preliminary suggestions for the implementation of Section 4 of the Act.

CSI STAKEHOLDER MEETING #2

DATE: Thursday, May 26, 2022

TIME: 1:00 PM

REGISTER: https://us06web.zoom.us/webinar/register/WN_oYEjUQaISeKw7blrRAT67Q

TOPIC: This meeting will focus on the below-listed topics, described in the following specific sections of the Straw:

- Section IV.A - Solicitation tranches
- Section IV.A - Implementation of the "Grid Supply Solar Paired with Storage" tranche
- Section IV.C - Auction procedure
- Section IV.F - Procurement frequency

¹ Not a paid legal advertisement.

CSI STAKEHOLDER MEETING #3

DATE: Wednesday, June 1, 2022

TIME: 1:00 PM

REGISTER: https://us06web.zoom.us/webinar/register/WN_GgpmBs0HSZmmnEtIU07zew

TOPIC: This meeting will focus on the below-listed topic, described in the following section of the Straw:

Section IV.B - Project pre-qualification, bid participation fees, and commercial operation date requirements

STAKEHOLDER MEETING #4

DATE: Monday, June 6, 2022

TIME: 1:00 PM

REGISTER: https://us06web.zoom.us/webinar/register/WN_3yZwMdfETvWnx3TUG3L8fQ

TOPIC: This meeting will focus on the below-listed topics, described in the following sections of the Straw:

- Section IV.D - Auction price result
- Section IV.E - SREC-II payment structure

Please note that the meetings will be conducted via Zoom. You must register for each stakeholder meeting prior to attending, using the links provided above. Please register for each of the sessions at least **48 hours prior to the scheduled date.**

After registering, you will receive a confirmation email containing information on how to join the webinar as well as system requirements. We encourage stakeholders to check their systems ahead of the meeting so they can ensure that they will be properly connected to the meeting.

Any interested party who wishes to speak at any of the Stakeholder Meetings listed above, should indicate that they wish to be added to the speakers list at the time they register for each meeting, on the applicable Zoom registration page. Each of these meetings will be recorded, and the recording for each will be made publicly available on the Board's [website](#).

The deadline for comments on this matter is 5 p.m. EDT on June 20, 2022. Members of the public may file written comments after any of the meetings, regardless of whether they participate in the meetings. Please submit comments directly to the specific docket listed above using the "Post Comments" button on the Board's [Public Document Search](#) tool. Comments are considered "public documents" for purposes of the State's Open Public Records Act and any confidential information should be submitted in accordance with the procedures set forth in N.J.A.C. 14:1-12.3. Written comments may also be submitted to:

Secretary of the Board

44 South Clinton Ave., 1st Floor

PO Box 350

Trenton, NJ 08625-0350

Phone: 609-292-1599

Email: board.secretary@bpu.nj.gov

Please direct all questions about this matter to board.secretary@bpu.nj.gov.

Staff looks forward to receiving and reviewing stakeholder comments. Thank you for your interest in New Jersey's solar program.

Carmen D. Diaz
Carmen D. Diaz
Acting Secretary of the Board

Dated: April 26, 2022

New Jersey Competitive Solar Incentive (“CSI”) Program Daymark/Staff Straw Proposal

Released: April 26, 2022

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I. INTRODUCTION

This Competitive Solar Incentive (“CSI”) Program Straw Proposal (“Straw”) was developed by Daymark Energy Advisors (“Daymark”), working in conjunction with the New Jersey Board of Public Utilities (“NJBP” or “Board”) Staff (“Staff”). This Straw is intended to put forth specific ideas and concepts for discussion with stakeholders and ultimately to inform Staff’s recommendations to the Board for the CSI Program’s design and implementation.

On July 28, 2021, the NJBP voted unanimously to adopt the Successor Solar Incentive (“SuSI”) Program (“SuSI Order”).² The SuSI Program is designed to implement the Clean Energy Act of 2018 (P.L. 2018, c. 17) and the Solar Act of 2021 (P.L. 2021 c. 169). The SuSI Program sets the State on a path to double its solar capacity by 2026 with 3,750 megawatts (“MW”) of new capacity. This target is informed by New Jersey’s 2019 Energy Master Plan (“EMP”) and Governor Murphy’s goal of achieving 100% clean energy by 2050.

There are two components of the SuSI Program: (1) the Administratively Determined Incentive (“ADI”) Program and (2) the CSI Program. The ADI Program offers a fixed incentive for net metered residential projects, net metered non-residential solar projects of 5 MW or less, and all community solar programs. Additionally, the ADI Program includes an interim program for solar projects located on properly closed sanitary landfills, brownfields, and areas of historic fill that were previously eligible for certification under Subsection (t) of the 2012 Solar Act.³ The CSI Program covers grid supply projects (that is, projects connected to the grid in front of the meter that sell electricity into the wholesale markets) and net metered non-residential projects greater than 5 MW.

This Straw is informed by legislative mandates, prior Board actions, and stakeholder feedback, as summarized in “Section III: Background,” and lays out options and preliminary recommendations for the design and implementation of the CSI Program in “Section IV: Recommendations”. It is intended to elicit further stakeholder feedback and inform future recommendations to the Board.

² In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C. 17, NJBP Docket No. QO20020184, Order dated July 28, 2021.

³ P.L. 2012, c. 24. Subsection (t) provided SRECs to owners of solar electricity power generation projects located on such areas.

II. SUMMARY OF STRAW PROPOSAL RECOMMENDATIONS

A. Tranche procurement

As stated in the Solar Act of 2021, the CSI Program will be structured as a competitive procurement that will target an average of 300 MW⁴ of new solar projects annually. Eligible projects will include all grid supply projects and net metered non-residential projects greater than 5 MW.

This Straw recommends that the CSI Program be structured so that it consists of separate categories, or tranches, to ensure that a range of competitive solar project types are able to participate, despite, in some cases, potentially different project cost profiles. The Straw proposes to establish the following tranches:

Tranche 1: Basic Grid Supply

Tranche 2: Grid Supply on the Built Environment

Tranche 3: Grid Supply on Contaminated Sites and Landfills

Tranche 4: Net Metered Non-residential Projects above 5 MW

Tranche 5: Storage Paired with Grid Supply Solar

Projects eligible to compete in Tranche 2 or Tranche 3 would automatically also be considered eligible for Tranche 1.

B. Project qualification and maturity

This Straw recommends adopting project qualification and maturity requirements designed to ensure that selected projects have a high likelihood of reaching commercial operation. The Straw's Base Case recommendations include a project pre-qualification step that would require that a project meet one of the following criteria: (i) demonstrate a sufficiently advanced position in the PJM queue (taking into account the realities of the ongoing PJM interconnection reform process), (ii) demonstrate a comparable interconnection position in a state-jurisdictional queue, or (iii) for net metered projects, demonstrate conditional approval of their utility interconnection request. In addition, projects would be required to pay a \$1,000 per MW non-refundable solicitation participation fee and demonstrate their qualification to participate in the tranche to which they wish to apply. Using pre-qualification through queue position would avoid having to engage in a more complex, subjective process relating to permitting, securing right of ways, or evidence of public support.

⁴ For the purposes of this Straw, all MW will be direct current (DC), unless specifically indicated.

In the light of difficulties presented by the currently ongoing PJM queue reform process, the Straw invites stakeholders to present alternative approaches to using interconnection queue position as a pre-qualification requirement.

All projects under the CSI Program would be required to achieve a Commercial Operation Date (“COD”) deadline of three years after registration in the Program.

C. Auction procedure

For each tranche, this Straw proposes a MW procurement target. Two options have been considered regarding the order of evaluations:

1. An initial competition of all projects from Tranche 1, 2, and 3, followed by targeted competitions for remaining projects in Tranches 2 and 3.
2. Competitions for projects in Tranches 2 and 3 conducted first, with all remaining grid supply projects competing in Tranche 1.

The Straw recommends Option 1.

D. Auction price result

The Solar Act of 2021 specifies that incentives for solar projects in New Jersey will be provided through the creation and distribution of solar renewable energy certificates known as “SREC-IIs.” This Straw recommends that SREC-II values should be determined using a pay-as-bid approach.

E. SREC-II payment structure

Staff seeks comment on whether competitive solicitation SREC-IIs should be structured as Fixed REC incentives or whether the SREC-IIs should be indexed to wholesale energy prices, creating “Indexed SREC-IIs”. See Section IV.E.

F. Incentive term

The SuSI Order set the SREC-II Qualification Life for projects participating in the ADI Program at 15 years “following the date of commencement of commercial operations based on metered generation supplied to GATS, with one MW-hour being the basis for the creation of one NJ SREC-II.”⁵ This Straw similarly proposes to set the qualification life for projects participating in the CSI Program at 15 years.

⁵ In re A Solar Successor Incentive Program Pursuant to P.L. 2018,c. 17, NJBPU Docket No. QO20020184, Order dated July 28, 2021 at 51.

G. Procurement frequency

Staff is recommending that all tranches be procured in a single procurement, and that procurement be held once per year. However, some adjustments to this schedule may be appropriate to coordinate with the implementation of PJM's new queue procedures, should these be approved, as discussed further in Section IV.B.

III. BACKGROUND

A. Solar in New Jersey

New Jersey has been a longstanding national leader in solar development despite its small size, high population density, and lower solar insolation relative to some of the western and southern states.⁶ As of January 31, 2022, the State had over 1,215 MW of residential solar installations, over 1,820 MW of commercial and industrial installations, and over 770 MW of grid supply installations for a total exceeding 3,835 MW.⁷ This places New Jersey eighth among all states in the country in terms of installed solar capacity through the end of 2021.⁸

New Jersey has had several successive programs that have supported the growth of solar buildouts. The State's Renewable Portfolio Standard ("RPS") was originally established in 1999, setting increasing targets for renewable energy procurement by Third Party Suppliers and Basic Generation Service Providers ("TPS/BGS Providers"). The State has instituted incentive programs to directly support the installation of solar, including the recently closed Legacy Solar Renewable Energy Certificate ("SREC") Program and subsequent Transition Incentive ("TI") Program.

On May 23, 2018, Governor Murphy signed the Clean Energy Act of 2018 into law.⁹ This law directed the NJBPU to redesign New Jersey's solar incentive programs. Specifically, it called on the NJBPU to adopt rules and regulations to close the Legacy SREC Program to new applications once the Board determined that 5.1 percent of the kWh sold in the State by electric power suppliers and basic generation providers had been generated "from solar electric power generators connected to the distribution system."¹⁰ This milestone was reached on April 30, 2020.

The TI Program, which opened to registrations after the closure of the Legacy SREC Program, was designed to be a temporary program that would remain in effect only until the Board opened the new SuSI Program, of which the CSI Program is a part.

On June 9, 2021, Governor Murphy signed the Solar Act of 2021. The Solar Act directs the NJBPU to establish a program to incentivize the development of 3,750 MW of solar by 2026. It

⁶ NREL, "Global Horizontal Solar Irradiance, National Solar Radiation Database Physical Solar Model," February 22, 2018, available at: <https://www.nrel.gov/gis/assets/images/solar-annual-ghi-2018-usa-scale-01.jpg>.

⁷ New Jersey Board of Public Utilities, Solar Activity Reports, available at:

<https://njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports>

⁸ Solar Energy Industries Association, *Top 10 Solar States* (last visited March 23, 2022), available at <https://www.seia.org/research-resources/top-10-solar-states-0>

⁹ P.L. 2018, C. 17.

¹⁰ P.L. 2018, C. 17., 2.d(3).

directs the Board to target the development of at least 300 MW of net metered solar annually, at least 150 MW of community solar annually, and an average of 300 MW of grid-scale solar annually.¹¹

On July 28, 2021, the Board voted unanimously to implement the SuSI Program. The SuSI Program was designed to meet the targets laid out in the Solar Act of 2021, and thereby support Governor Murphy's goal of reaching 100% clean energy by 2050.

There are two components of the SuSI Program: the ADI Program and the CSI Program. The ADI Program offers a fixed incentive for net metered residential solar projects, net metered non-residential solar projects of 5 MW or less, and all community solar programs. The CSI Program covers grid supply projects and net metered non-residential projects greater than 5 MW and will provide incentives for which the value will be determined through a competitive solicitation process.

B. Stakeholder process

Overview

This Straw is part of a process of ongoing stakeholder engagement regarding the development of the ADI and CSI Programs. Five stakeholder workshops were held in the spring and summer of 2021, prior to the July 28, 2021, Board Order that established the SuSI Program.¹² Daymark and Board Staff also held a stakeholder meeting on November 30, 2021, which focused exclusively on the design of the CSI Program. Additional stakeholder workshops have been announced in the stakeholder notice published alongside this Straw.

Initial CSI Program Stakeholder Meeting

On November 1, 2021, the Secretary of the Board issued a notice inviting all interested parties and the public to participate in a stakeholder meeting regarding the CSI Program. Included with the notice was a list of six questions on which Daymark and Staff sought feedback from stakeholders. The questions covered topics such as the designation and treatment of project categories, adequate maturity requirements and financial assurances, and other aspects of program design.¹³ The stakeholder meeting was held on Tuesday, November 30, 2021, via Zoom Virtual Webinar and included a short presentation on the CSI Program and areas for stakeholder input followed by an opportunity for stakeholder spoken comments. One hundred and thirty-three stakeholders registered to attend the session, with fourteen providing verbal

¹¹ N.J.S.A §48:3-117(3)(a)

¹² In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C. 17, NJBPU Docket No. QO20020184, Order dated July 28, 2021.

¹³ Notice in re Competitive Solar Incentive ("CSI") Program Pursuant to P.L. 2021, C. 169, Docket No. QO21101186, Notice issued November 1, 2021.

comments during the session. Stakeholder representation included a large number of developers, the ratepayer advocate, representatives of environmental organizations, and others.

Table 1. Attendees of November 30, 2021 Stakeholder Meeting (self-reported by the attendees based on categories defined by Daymark)

	Attendees by Stakeholder Category
Developer	42
EDC	7
Advocacy/Trade Association	5
ESCO	4
Financing	3
Law Firm	3
Professional Services	3
REP/Community Solar	3
Solicitation Manager	3
NJ Govt	2
REP/IPP	2
Education	1
Gas Company	1
Industrial	1
Integrated Energy Company	1

Stakeholders were also invited to provide written comments following the meeting; twelve stakeholders provided comments in written form following the session.

Staff, working with Daymark, considered stakeholder verbal and written comments while working to develop this Straw and has sought to summarize stakeholder positions in each of the sections. The stakeholder process will continue following the issuance of this Straw.

C. CSI Program principles

In drafting this Straw, Staff and Daymark adhered to several principles important to New Jersey’s solar policy and cited in the SuSI Program Straw Proposal:¹⁴

1. Provide maximum benefit to ratepayers at the lowest cost;
2. Support the continued growth of the solar industry;
3. Meet the Governor's commitment to 50% Class I Renewable Energy Certificates (“RECs”) by 2030 and 100% clean energy by 2050;

¹⁴ In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C.17, NJBPU Docket No. QO20020184, Staff Straw Proposal, April 8, 2021, revised April 26, 2021, and May 5, 2021, p. 6.

4. Provide insight and information to stakeholders through a transparent process for developing the Solar Transition and Successor Program; and
5. Comply fully with applicable statutes.

In addition, Staff notes that the Solar Act of 2021 includes specific siting provisions which direct that “[t]he development of grid supply solar should be directed toward marginal land and the built environment and away from open space, flood zones, and other areas especially vulnerable to climate change” and call for a policy approach that will “affordably expand New Jersey’s commitment to renewable energy while not compromising the State’s commitment to preserving and protecting open space and farmland.”¹⁵ Siting rules applicable to CSI Program participants are being discussed in a companion proceeding.¹⁶

The intention of the CSI Program is to promote the development of new solar projects that allow the State to progress toward meeting its renewable energy goals by leveraging the maturing solar industry to achieve maximum benefits to ratepayers at the lowest reasonable cost. The targets set and the transparency of the process are intended to support the continued growth of solar deployment throughout the State.

¹⁵ N.J.S.A §48:3-117(4)(c)

¹⁶ See Docket No. QO21101186.

IV. RECOMMENDATIONS: COMPETITIVE SOLAR INCENTIVE PROGRAM DESIGN

A. CSI Program bid tranches

This Straw recommends that the CSI Program be structured into separate procurement categories, or tranches, to ensure that a range of types of competitive solar projects qualify to receive SREC-IIs, despite, in some cases, potentially different project cost profiles.

Background

The report that accompanied the July 28, 2021, Board Order creating and implementing the SuSI Program¹⁷ recommended several kinds of projects that the CSI Program should consider. Those included four categories proposed in the earlier Solar Successor Program Straw Proposal¹⁸ and an additional two sub-categories that Staff noted could require additional consideration based on stakeholder comments.

2021 Staff-suggested CSI categories:

- Basic grid supply
- Grid supply on desirable land uses (rooftops, the built environment, landfills, contaminated sites)
- Storage paired with grid supply solar
- Net metered non-residential above 5 MW

Sub-categories for additional consideration:

- Solar on contaminated land
- Public entity projects

In developing this Straw for the CSI Program, Daymark and Staff considered initial stakeholder comments to better understand the reasons for potential special consideration of each of these categories (other than basic grid supply). Staff's current recommendation is to develop a bid process that includes specific tranches (separate competitions) for the categories of projects discussed below.

Stakeholder input

Daymark and Staff asked for stakeholder input on topics relating to the definition and treatment of project categories within the CSI Program.

¹⁷ In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C. 17, NJBPU Docket No. QO20020184, Order dated July 28, 2021, pp. 2-48.

¹⁸ In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C.17, NJBPU Docket No. QO20020184, Staff Straw Proposal, April 8, 2021, updated April 26, 2021, and May 5, 2021, p. 15.

In the prior proceeding on the SuSI Program, Stakeholders had mixed positions regarding the inclusion of a separate contaminated land project category within the CSI Program design. The New Jersey Division of Rate Counsel argued that the Solar Act of 2021's intention of preserving green space would be equally well served by supporting the construction of potentially cheaper projects on the built environment, rather than providing additional subsidies for contaminated land projects. Another commenter raised concerns that a separate tranche for contaminated land projects might not have enough bidders to create robust competition, potentially resulting in higher prices than needed to support these types of projects and/or unmet capacity targets. Those stakeholders that supported separate consideration of contaminated land projects noted their unique risk characteristics and difficult timelines, which they believe justify special treatment.

When asked about other project types that should be given preference within the CSI Program design, stakeholders suggested carports, built surfaces, dual-use solar (i.e., agrivoltaics), floating solar, redevelopment/rehabilitation areas, and various other specific categories such as undeveloped commercial zones, mine sites, etc.

Regarding large net metered projects, stakeholders were largely in agreement that net metered projects already receive a higher value for the electricity produced under net metering provisions, independent of the CSI Program, but some noted that these projects have increased costs relating to installation and the limitations inherent in a project that must be sized according to the customer's average annual electricity consumption.

Regarding public entity participation, stakeholders noted some characteristics of these projects that are not conducive to a competitive procurement, for example, municipal procurement laws and the inability for a developer to commit to a final price for the public entity prior to knowing the level of SREC-II support that may be available, if any. However, one stakeholder noted that a very small number of these projects exist and opined that it would not be worth accommodating these projects in the program design.

Finally, a few comments responded to a request for input on energy storage. One stakeholder expressed support for allowing projects to bid the same project with and without storage for flexibility. Another stakeholder suggested referencing programs in Connecticut and Massachusetts for compensation design. A third stakeholder recommended deferring inclusion of storage in the CSI Program until the storage proceeding occurs.

Discussion

Tranches, targets, and competition across categories

The Solar Act of 2021 gives the NJBPU discretion in designing the tranches in the CSI Program, provided the tranche system enhances the diversity of energy resources and results in environmental and public health benefits to New Jersey. The Act states:

The board may establish a system of distinct bidding categories within the competitive solicitation process set forth in this section, such that only bids from the same category compete with one another. The category system may take into account the size of the facility, location of the facility on a contaminated site or landfill, as determined by the board in consultation with the Department of Environmental Protection, or any other feature of a facility, provided that the category system enhances the continued diversification of the energy resources used to meet consumer demand in this State and results in environmental and public health benefits to New Jersey residents, as determined by the board.¹⁹

In the case of Grid Supply on the Built Environment and/or Grid Supply on Contaminated Sites and Landfills, the intention is to ensure a minimum level of participation, but not to limit participation to that minimum. At equivalent prices, Grid Supply on the Built Environment or Grid Supply on Contaminated Sites and Landfills is preferred to grid supply located on greenfield sites. One potential outcome of the procurement, therefore, is that 250 MW of awards are made to Grid Supply on the Built Environment and zero MW are made to greenfield projects. The bid review procedure discussed in Section IV.C, below, is intended to ensure this kind of outcome is possible, depending on the bids received.

Recommendations on tranches

The Straw recommends the following bid tranches, based on a consideration of the categories above:

1. Basic Grid Supply;
2. Grid Supply on the Built Environment;
3. Grid Supply on Contaminated Sites and Landfills;
4. Net Metered Non-residential Projects above 5 MW; and
5. Grid Supply Solar Paired with Storage.

¹⁹ N.J.S.A. § 48:3-117 (4)(b)

Tranche 1. Basic Grid Supply. The basic grid supply category would include all grid supply projects that do not qualify for one of the tranches below (e.g., greenfield solar projects).

Proposed definition: Basic Grid Supply projects include all grid supply solar projects that do not qualify for Tranches 2 or 3 and are connected to the distribution or transmission system owned or operated by a New Jersey public utility or local government unit.

Tranche 2. Grid Supply on the Built Environment. The Solar Act of 2021 directed the NJBPU to ensure that the “development of grid supply solar ... be directed toward marginal land and the built environment and away from open space, flood zones, and other areas especially vulnerable to climate change[.]”²⁰ This Straw proposes to prioritize grid scale solar located on the built environment in furtherance of these statutory goals by creating a specific tranche open exclusively to such projects. Considering these projects in a separate tranche recognizes that NJBPU may choose to select these projects even if they come at some premium over greenfield solar development, while establishing a competitive structure to set an appropriate market price for these projects. Staff does not recommend differentiating between different types of built environment (for example, rooftops vs. carports). As Staff stated in their report that prefaced the July 28, 2021, Board Order, “[t]he environmental and open space impacts of both types of projects [rooftop and carport projects] are generally comparable in the sense that they are both installed on the built environment [.]”²¹

Proposed definition: Grid Supply on the Built Environment refers to all grid supply solar projects for which 100% of the photovoltaic panels are installed on rooftops, raised carports over parking lots or parking decks, or similar installations on the built environment, and connected to the distribution or transmission system owned or operated by a New Jersey public utility or local government unit.

Tranche 3. Grid Supply on Contaminated Sites and Landfills. Staff recommends that this specific subset of projects be broken out into its own category, at least in the first procurement. The Solar Act of 2021 calls out solar on contaminated sites and landfills specifically, stating that the solar solicitation program must “ensure that the environmental and public health benefits of solar electric power generation facilities on contaminated sites or landfills are recognized, including accommodating the long development timescale for these projects.”²² Solar on contaminated sites and landfills may need special consideration to be competitive in the CSI Program, due to the additional costs of mitigating the contamination and securing permits.

²⁰ N.J.S.A. § 48:3-117 (1)(c)

²¹ In re A Solar Successor Incentive Program Pursuant to P.L. 2018, C. 17, NJBPU Docket No. QO20020184, Order dated July 28, 2021, pp. 17-18.

²² N.J.S.A. § 48:3-117(4)(c)

Consideration within a separate tranche increases the chance that these projects will be able to qualify for SREC-IIs in the CSI Program.

In addition to the direction provided by the Solar Act of 2021, another reason to provide for potentially higher payments to solar on contaminated sites and landfills is the potential long-term benefits of continuing to support this kind of development in New Jersey. The Board has long recognized the benefits of solar on contaminated sites and landfills, not in the least since it has enabled clean-up and mitigation activities on such sites, and because, given the limited availability of land, using contaminated sites and landfills for solar development, reduces development pressure on open space.

New Jersey is a leader in solar development on landfills and brownfields, with approximately 230 MW operational under Subsection (t) as of February 28, 2022.²³ A separate tranche for development on contaminated sites and landfills is a prudent step to ensure that capabilities to support this kind of development are preserved. In the near term, these projects may be more expensive than projects not located on contaminated land. As solar development continues and potential solar development sites become scarcer, however, this type of solar development may become more competitive with other solar projects, and savings may result from preserving the knowledge and infrastructure that currently exists in New Jersey to support such development.

Accordingly, this Straw suggests creating a separate Grid Supply on Contaminated Sites and Landfills tranche to target a certain amount of MW to award to this category, even if awards potentially come at some premium, in order to sustain contaminated land development capabilities in New Jersey. Allowing solar projects on contaminated sites and landfills to compete in a separate tranche would allow NJBPU to target at least a minimum MW amount of such procurement, while at the same time, as appropriate, establishing tailored solicitation requirements (such as maturity and COD requirements).

In order to administer this tranche, it is necessary to clearly define what projects are included. This Straw proposes to adopt the statutory definition for Grid Supply on Contaminated Sites and Landfills:

'Contaminated site or landfill' means: (1) any currently contaminated portion of a property on which industrial or commercial operations were conducted and a discharge occurred, and its associated disturbed areas, where 'discharge' means the same as the

²³SRP, ADI, and TI Installation Report through February 28, 2022, "Interconnection & Customer Type" tab, available at: <https://www.njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports> .

term is defined in section 23 of P.L.1993, c.139 (C.58:10B-1); or (2) a properly closed sanitary landfill facility and its associated disturbed areas.²⁴

This Straw further proposes that land that is designated as “Agricultural Lands” in the modified Anderson Classification system developed by New Jersey Department of Environmental Protection (“NJDEP”) (the 2000 series)²⁵ will be excluded from participation in Tranche 3. This exclusion is in keeping with New Jersey’s longstanding policy of prohibiting active farmland from receiving the higher solar incentives associated with development on contaminated lands. Instead, projects proposed for farmland should compete on an equal basis with other agricultural sites.

Administratively, projects would pre-qualify for participation in Tranche 3 by demonstrating that the property targeted for solar development is a property listed on the New Jersey Known Contaminated Sites List,²⁶ or on the New Jersey Landfill List maintained by DEP,²⁷ and providing preliminary evidence that the contaminated portion of the property and its associated disturbed areas cover or exceed the area targeted for solar development. Associated disturbed areas will include areas, which may themselves not have been contaminated, but are clearly associated with contaminated areas or landfills. Examples include access roads, lay-down areas and former building sites that were previously part of an industrial or landfill complex. The associated disturbed areas cannot exceed 10% of the total land area targeted for solar development.

After an award through the solicitation, but prior to registration in the CSI Program, NJBPU, in cooperation with NJDEP, will conduct a more rigorous eligibility review, similar to the process currently used for qualification under subsection (t).

Tranche 4. Net Metered Non-residential Projects above 5 MW. As specified in the Solar Act of 2021, net metered solar projects in New Jersey of 5 MW or less qualify for inclusion in New

²⁴ P.L. 1999, c.23 § 3.

²⁵ A Land Use and Land Cover Classification System for Use with Remote Sensor Data, U.S. Geological Survey Professional Paper 964, 1976; edited by NJDEP, OIRM (Office of Information Resources Management), BGIA (Bureau of Geographic Information and Analysis), 1998, 2000, 2001, 2002, 2007, 2012, 2015.

²⁶ “The Known Contaminated Sites List for New Jersey are those sites and properties within the state where contamination of soil or ground water has been confirmed at levels equal to or greater than applicable standards. This list of Known Contaminated Sites may include sites where remediation is either currently under way, required but not yet initiated, or has been completed and addressed via an Institutional Control.”

Source: Known Contaminated Site List for New Jersey (Envr_NJEMS_KCSL) (Web Mercator ArcGIS Online Service) vector digital data NJDEP, *available at:*

<https://www.arcgis.com/sharing/rest/content/items/b167bb2ae09c43f8ab9e954700be45d9/info/metadata/metadata.xml?format=default&output=html>

²⁷ <https://www.nj.gov/dep/dshw/lrm/landfill.htm>

Jersey's ADI Program. Net metered non-residential projects greater than 5 MW qualify for this CSI Program.

It is not known how many qualifying large net metered projects are likely to compete in the CSI Program. Some stakeholder comments suggest that developers of net metered projects may find it hard to navigate the unpredictability of a competitive procurement. In addition, there may be some inherent limitations on the number of appropriate sites for such large net metered projects. However, the TI Program received a robust response from large (> 5 MW) net metered projects of approximately 120 MW, suggesting that there could be significant potential participation by large net metered projects.²⁸ In fact, net metered projects may have some inherent advantages in a competition against wholesale projects, since they already receive some degree of subsidy, compared to wholesale projects, in the form of net metering credits higher than the wholesale cost of power. For the purpose of supporting the "continued diversification of...energy resources" as the Solar Act of 2021 requires,²⁹ it would not be desirable to risk awarding all CSI Program capacity to net metered projects. By breaking these projects out into their own tranche, NJBPU will be able to award SREC-IIs to the most competitive net metered projects, while ensuring that there is still room in the program for other types of projects.

Within the net metered project tranche, this Straw Proposal does not propose to differentiate between different types of sites being developed (i.e., no additive preference for contaminated sites or built environment projects).

Proposed definition: Net metered non-residential Projects above 5 MW must meet the requirements of their New Jersey utility to qualify as net metered projects serving non-residential customers.

Tranche 5. Grid Supply Solar Paired with Storage. New Jersey does not currently have an independent energy storage program, although the establishment of mechanisms for achieving energy storage goals is required to be developed under the Clean Energy Act of 2018³⁰. In the interim, the Board has expressed an interest in piloting support for storage in the context of the CSI Program by offering competitively set incentives for grid supply solar projects that are paired with storage.

Adding storage to a solar project carries some benefits that can result in increased project revenues over time. Solar projects that include storage can benefit from increased capacity ratings in PJM wholesale markets and from being able to store energy produced when local

²⁸ Source : Pipeline Data and Installation Data, available at <https://www.njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports>

²⁹ N.J.S.A. § 48:3-117(4)(b)

³⁰ P.L. 2018, c.17 § 1.

wholesale prices are low and sell when those prices are higher. For the purposes of price discovery, this Straw suggests a dedicated storage tranche, for which projects that pair grid supply solar and storage would be eligible. This would potentially provide a storage adder to solar projects that qualify for SREC-IIs in competition with other solar projects and that also offer a storage component that is competitive within the storage tranche.

In order to compete in the Storage Paired with Grid Supply Solar tranche, a solar plus storage project would provide a two-part bid: a solar-only SREC-II price and a storage adder price. The project would first be considered as a solar-only project in the appropriate tranche (or tranches). Assuming it received an SREC-II award, its proposed storage adder price would then be considered separately in the storage tranche for award of a storage adder.

The intention of this approach is to encourage projects to consider the addition of storage, to ensure that projects that do consider adding storage are not penalized in the selection process by additional costs associated with storage, and to assist in gathering information about the cost to developers of incorporating storage into their solar projects. Staff suggests the CSI Program should avoid dictating how much storage each project should include, or how the storage should be operated once built. At the same time, because the CSI Program is focused on promoting solar projects, the storage incentive MWhs eligible for the adder are limited in this proposal to four times the total MW of the solar project (that is, a solar project may be fully paired with no more than 4 hours of eligible storage).

To accomplish these goals, bidders would be instructed as follows:

Bidders should indicate the amount of MWh of storage they are proposing and the overall MW size of their solar project. They should include:

- *An SREC-II bid for the solar portion of the project.*
- *An SREC-II storage adder bid for the storage portion of the project, expressed in \$ per MWh of solar production, and specifying the number of MWh of energy storage capacity offered.*
- *A statement as to whether the storage element of their project is separable—in the event they receive SREC-II award only for the solar portion of their project, should this bid remain under consideration as a solar-only SREC-II award, or is the solar bid contingent on the project’s storage bid also being awarded?*

These bids will be evaluated first independently as projects without storage. Second, projects that are awarded SREC-IIs as solar projects will be considered in the storage tranche. Projects must succeed in both categories to be awarded the storage SREC-II adder. Projects that indicate that they are separable and succeed as solar projects but do not succeed in the storage tranche will still be awarded solar capacity in the appropriate grid supply tranche. In case the developer has indicated in its initial bid that they do not wish to proceed with a solar-only

project, the capacity associated with its solar project will be put back into the appropriate grid supply tranche and the market will be re-cleared.

A key element in the design of the Solar paired with Storage tranche is including a capacity adjustment mechanism to account for the fact that projects with very different amounts of storage (both in absolute terms and in proportion to the capacity of the proposed solar unit) may be competing with each other. For the purpose of storage adder bid *evaluation*, bids will be compared on a \$/MWh (of solar production) adder cost basis. However, the application of the awarded adder to generated SREC-IIs will be adjusted to reflect the percentage of the solar project's MW capacity that is paired with four hours of energy storage capacity. A solar project will be considered to be 100% paired with storage if its energy storage capacity (in MWh) is four times the nameplate capacity of the project (in MW). So, for example, a 20 MW solar project will be considered to be 100% paired with storage if storage capacity is 80 MWh. The final storage adder will be multiplied by the percentage of the solar facility that is paired with 4 MWh of storage. In no case will the adder be multiplied by an amount greater than 100%. So, for example, a project that pairs only 50% of its solar capacity with 4-hour storage will receive an adder for each SREC-II of 50% of the adder value established in the solicitation.

Because SREC-IIs can only be created by the generation of solar electricity, all bids must be expressed in terms of dollars per solar MWh of generation. Qualifying projects will not be able to claim SREC-IIs in excess of the total MWh of power generated by the solar portion of their facility on a monthly basis.

A hypothetical bid for a storage paired with grid supply solar project is provided below as an illustrative example of the proposed bidding structure.

Example: Participation of a Grid Supply Solar Project Paired with Storage in the CSI Program

Sample case: The developer of a 20 MW grid supply solar project plans to pair the solar unit with a battery capable of storing 20 MWh of electricity. They wish to bid both for SREC-IIs in the Basic Grid Supply Tranche and for a storage adder in the Storage Paired with Grid Supply Solar Tranche.

Bid submission: After prequalifying as a Storage Paired with Grid Supply Solar project, the developers submit a bid with two prices: (1) their SREC-II bid (what they would require per MWh of solar production to support their solar unit, independent of support for the storage component); (2) their SREC-II storage adder bid. The storage adder bid should equal the additional amount that would need to be added to their SREC-II award, per MWh of *solar* production, *divided by the percentage of the solar facility capacity that is paired with 4-hour storage*,³¹ in order to support inclusion of the storage component.

Bid review: The solar component of the bid would be considered in its appropriate tranche (in this case, Basic Grid Supply). Assuming the project succeeded in being awarded SREC-IIs within that tranche, the project's proposed SREC-II storage adder would be considered in the Storage Paired with Grid Supply Solar tranche. The lowest bids in that tranche would be selected, until awards had been made for up to 160 MWh of energy storage capacity.

If the developer's storage adder bid was not accepted, the solar-only portion of the project would still clear, unless the developer indicated in its initial bid that it did not wish to proceed with a solar-only project. In that case, an additional 20 MW of additional capacity would be put back into the Basic Grid Supply Tranche and the market would be re-cleared.

SREC-II implementation: Assuming the project's SREC-II storage adder was also selected, the project would be awarded SREC-IIs with a storage adder. The actual amount of the storage adder would be the dollars per MWh amount bid, multiplied by the percentage of the project capacity paired with 4 MWh of energy storage capacity. For this project, 25% of the 20 MW solar capacity is paired with four hours of energy storage capacity. Accordingly, the project's awarded SREC-II storage adder would be $0.25 * (\$/\text{MWh bid})$. This adder would be applied to all SREC-II payments for that project. SREC-II payments, as always, would be made only for MWh of solar generation.

³¹ This adjustment is needed to compensate for the post-award adjustment of SREC-II adders to reflect the percentage of the total capacity of the solar project paired with the equivalent of 4-hour storage.

Because of the complexity inherent in this two-bid structure and the resulting difficulty in predicting bidding behavior, this Straw recommends that the Board consider adopting confidential price caps that will apply to the storage tranche. Staff also recommends that this storage adder, at least initially, be limited to grid supply solar projects (net metered non-residential projects would not be permitted to participate).

Appendix 1 includes two flow-chart examples of how different solar plus storage proposals would make their way through the tranche evaluation process based on this Straw's proposal.

Proposed definition: Storage Paired with Grid Supply Solar is any project that qualifies to participate in Tranches 1, 2, or 3 and which includes a battery storage unit that meets PJM's definition of either a co-located or hybrid storage resource. (In the case of co-located storage, pre-qualification must include evidence of separate PJM queue status.)

Project types not recommended for distinct tranches

The following three project types, though they may participate in the CSI Program, are not recommended for separate tranches: public entity projects, dual-use projects, and floating solar projects.

Public entity projects. Staff and Daymark believe that the primary obstacles for public entities participating in the CSI Program are: 1) limited staff bandwidth to navigate the process; and 2) difficulty managing the uncertainty inherent in the competitive process.

After considering the concerns raised about the difficulties faced by public entities in participating in this type of solicitation, the Straw does not propose establishing a separate procurement tranche for these projects. Although it is important that the procurement be structured so that it is possible for public entity projects to compete, these concerns are not best addressed by establishing a separate tranche of the procurement, since it is not clear that a separate tranche would address the staffing and uncertainty obstacles identified above. Instead, this Straw suggests establishing a process and/or making public education resources available that would support participation by public entity projects in the overall competitive solicitation and requests comments from public entities on what such a process could look like.

Dual-use projects. Although some stakeholder interest was expressed in establishing specific program carve-outs for dual-use solar, as also known as agrivoltaic projects, this Straw does not include a recommendation for special consideration in this CSI Program. A Pilot program for dual-use projects will be available as part of New Jersey's Dual-Use Solar Energy Pilot Program, to be established under P.L. 2021 c. 170. Dual-use projects may compete in any of the above tranches for which they are eligible, on a comparable basis with other projects, and Staff does not recommend creating a process by which they would be eligible to receive a higher incentive through the CSI Program.

Floating solar projects. This Straw proposal does not include a recommendation for establishing a specific tranche for floating solar projects, nor does it recommend including floating solar in Tranches 2 or 3. Instead, floating solar generally would be eligible to compete in the Basic Grid Supply tranche.

B. Project pre-qualification, bid participation fees, and commercial operation date requirements

It is not sufficient to select the lowest-priced SREC-IIs proposed, but rather it is necessary to select the proposed projects with the lowest SREC-II costs that also have a reasonable likelihood of successful and timely completion. Project qualification and maturity requirements aim to strike a balance between awarding sufficiently early in the development process to not create undue development risk or burden on developers, but also to support projects that can be successfully built and that can produce SREC-IIs within a reasonable timeframe.

Background

One way that solicitations sometimes balance cost and quality of proposal is to conduct a simultaneous quantitative and qualitative bid review, which may result in the winning projects not being the cheapest projects but being the least expensive among those projects which best satisfy certain qualitative criteria. In order to make sure that consumers benefit from the lowest cost qualified project in each category, bids into each category within the CSI Program will be ranked exclusively on price.

For this reason, this Straw focuses on recommendations related to requiring projects to pre-qualify before they submit price bids. The intention of pre-qualification is to eliminate projects that cannot reasonably be expected to be successfully completed within the solicitation's COD timeline. Projects that fail to pre-qualify in one solicitation round are free to reapply in subsequent rounds, as their plans become more developed. -

The discussion of pre-qualification is paired in this Straw with a discussion of Commercial Operation Date requirements because of the relationship between project pre-qualification requirements and how quickly a project can be expected to be completed after receiving an SREC-II award. The more stringent the pre-qualification requirements are in terms of how far advanced a project must be in order to participate in the CSI Program solicitation, the less time should be needed between SREC-II award and Commercial Operation Date.

One factor that adds significant uncertainty to this discussion is PJM's proposed queue reform, discussed in greater detail below. Any final recommendations on project pre-qualification and commercial operation date requirements will need to take into account the status of PJM's proposed changes to the process through which projects interconnect to the PJM grid.

Initial stakeholder input

On questions related to the requirements that should be set for project qualification, the central goal was to find a way to select projects that had solid prospects for successful development within a delineated timeframe, without setting the bar so high that these requirements would discourage prospective applicants from conducting the up-front development required to enter a CSI Program solicitation. A key issue that stakeholders raised was the uncertainty grid supply projects face about the amount of time it will take to interconnect in PJM. While stakeholders largely agreed that the state of the PJM interconnection process presents challenges to prospective CSI Program projects, recommendations on how to accommodate these timelines in the CSI Program design were highly mixed. One set of stakeholders noted that requiring a project to be at an advanced stage (e.g., a completed Facilities Study) would result in a high degree of certainty regarding interconnection costs and remaining timeline and an ability to commence operation within approximately two years. However, several stakeholders opposed requiring a project to be at such an advanced stage, noting that the current PJM queue delays may mean that prospective projects may not be able to qualify for the CSI Program for a number of years with such a requirement. Many stakeholders providing feedback on this question noted that the ongoing PJM queue reform efforts could greatly impact the nature of this program design element.

On a related topic, stakeholders also provided feedback as to at what point in the process assurance of a CSI Program award would provide the greatest value for preventing projects from dropping out of the queue. Responses to this question primarily came from developer stakeholders who generally felt that the earlier the incentive commitment could be provided, the greater the value to a project trying to progress through the queue.

Daymark and Staff also sought feedback on possible additional maturity requirements, aside from queue position, and their implications. Stakeholders were largely in agreement that site control should be required, noting that it is already a requirement to enter the PJM queue. The question of whether right-of-way (“ROW”) control should be required received mixed responses, with one comment supporting this as a requirement but other stakeholders noting that it is typically determined later in the process and/or would interfere with the development process if it were included as a required element. Stakeholder comments were also split on the idea of a requirement to demonstrate community engagement.

For net metered projects, stakeholder input was that a signed letter of intent with the host location is adequate, with one stakeholder also recommending that the projects have Part 1 Interconnection Application executed (signifying the distribution utility’s approval to commence construction).

Finally, Daymark and Staff sought feedback on appropriate bid participation fee levels. Responses on this issue varied greatly. Regarding the structure of the fees, one stakeholder advocated for flat fees (independent of project size), one suggested a fee cap, while others proposed \$/kW fees or escrows. Respondents noted that fees and escrow are useful to discourage speculative projects but noted that excessive requirements could hurt development.

PJM's Queue Reform Proposal

PJM convened an Interconnection Process Reform Task Force (“IPRTF”) in April 2021. The reform effort sought to increase certainty for cost responsibility, reduce the overall time projects are in the interconnection queue by focusing on improvement to study phases, explore options to obtain interim service prior to completion of interconnection study work, and investigate requirements for admission into the New Service Queue and requirements to proceed through subsequent phases.³²

PJM is currently finalizing proposed changes to tariff language. Approval of the proposed changes is not certain. The proposed changes still require approval from PJM’s Members Committee and Markets and Reliability Committee (targeted for April 27, 2022), and then will be submitted to the Federal Energy Regulatory Commission (“FERC”) for final approval. PJM targets May 31, 2022 to file with the Commission³³, and hopes to receive FERC approval and transition to the new queue system in October 2022.³⁴

Some of the major points of the PJM reform proposal that may be especially relevant to the CSI Program procurement are the following:

- **Conversion from a first-come, first-served review process to a “first ready, first served” process within each queue cycle.** This change may give priority to projects that can demonstrate elements of readiness such as (potentially) site control and final financing arrangements.
- **Start of the next queue cycle is dependent on progress in the previous cycle.**
- **A “unified application” for all generation interconnections replaces separate applications for different project sizes.**
- **The process itself, its phases, and the related studies are redefined.**³⁵

³² <https://pjm.com/-/media/committees-groups/task-forces/iprtf/postings/iprtf-problem-statement.ashx>

³³ <https://www.pjm.com/-/media/committees-groups/task-forces/iprtf/2022/20220315/20220315-item-02-transition-to-cycle-process-and-tariff-revision-information.ashx>. Slide 4.

³⁴ <https://pjm.com/-/media/committees-groups/task-forces/iprtf/2022/20220105/20220105-item-03a-transition-proposal.ashx>

³⁵ See: PJM Solution Proposal Framework Changes. 3.11.2022 meeting of the Interconnection Process Reform Task Force. Slide 5: <https://pjm.com/-/media/committees-groups/task-forces/iprtf/2022/20220311/20220311-interconnection-queue-reform.ashx>

The most significant immediate impact for the CSI Program is the change in queue timing as PJM transitions from the current process to the proposed new process. PJM expects to complete queues through the end of the AD2 cycle³⁶ by the projected October 2022 transition date. PJM expects to complete 300 projects per year that remain in the existing process following the transition date.

PJM's Transition Proposal also includes a "fast lane" process which will allow qualifying projects already in the queue³⁷ to proceed using standing cost allocation rules if they meet certain requirements.

At a high level, assuming PJM's proposed queue reform is implemented as planned, the CSI procurement will need to accommodate the following important timing implications for potential solar projects:

- Projects currently in the PJM queue are expected to be able to execute final interconnection agreements between mid-2024 and mid-2026.
- Projects not already in the PJM queue will not be able to apply to enter the queue under the new process until mid-2023, with completion of the interconnection process anticipated by mid-2026; Phase 1 review work will not begin until mid-2026, and final interconnection agreements are not expected to be completed until late 2027.

As of March 2022, there are 76 New Jersey solar projects active in the PJM queue, with a total MW capacity of 1,583 MW.³⁸ Of these, 37 (totaling 861 MW) have at least completed a System Impact Study. (See Figure 1 below). These numbers do not imply that there are a full 861 MW of viable projects available to compete for SREC-IIs, however. Some projects have already received awards under the TI Program's subsection (t) awards. Other projects may be withdrawn for a variety of reasons—between 2013 and 2019, approximately 43% of solar projects that had completed System Impact Studies were eventually withdrawn from the queue. (See Appendix 3, Figure 9). Additional grid supply projects interconnecting at distribution voltage may also be available to participate in the CSI Program.

³⁶ Projects in cycle AD2 joined the queue prior to 2019.

See: PJM. Interconnection Queue Reform. March 15, 2022. Slide 5: <https://www.pjm.com/-/media/committees-groups/task-forces/iprtf/2022/20220315/20220315-item-02-transition-to-cycle-process-and-tariff-revision-information.ashx>

³⁷ This applies to projects in queue cycles in queue cycles AE1-AG1. Projects in cycle AE1 joined the queue in late 2018. Projects in cycle AG1 joined the queue in mid-2020.

³⁸ Includes Energy Capacity of all solar and solar + storage projects active in the PJM queue with projected in-service dates 2021 and beyond

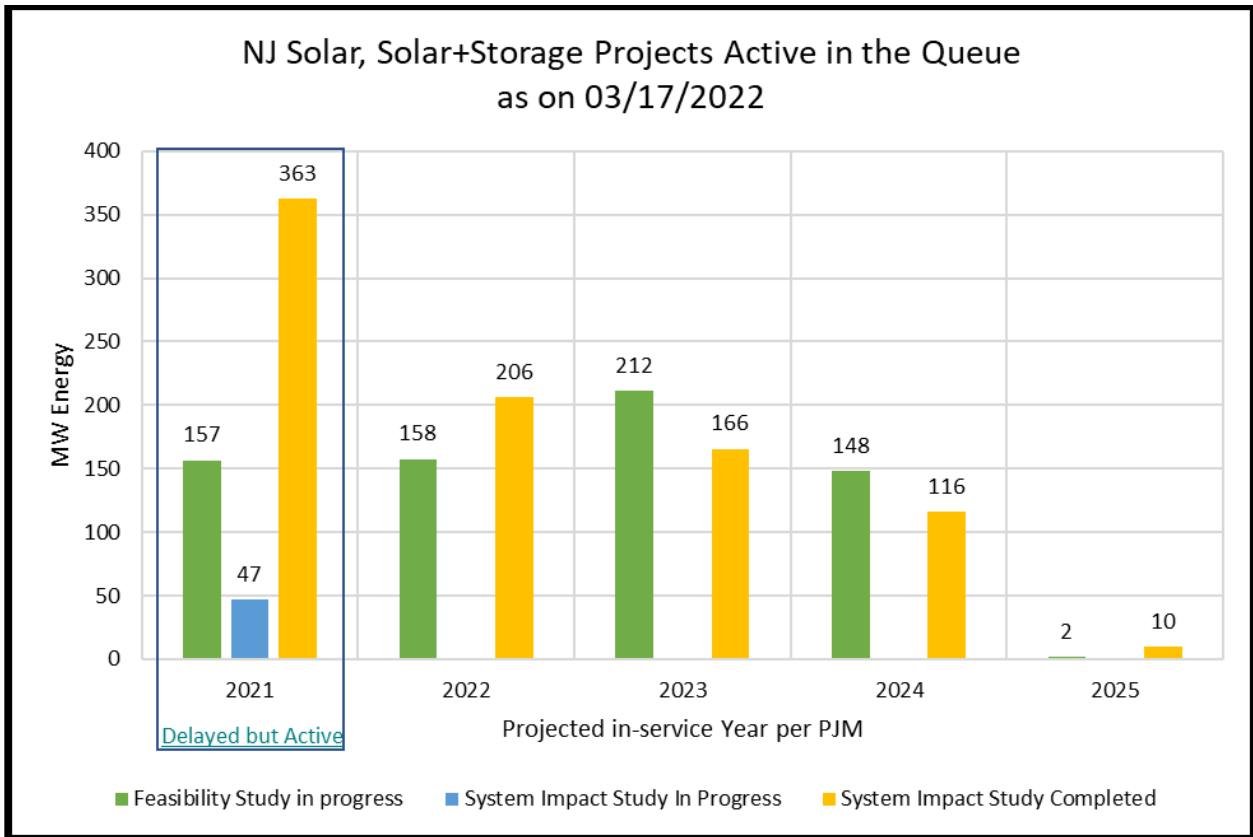


Figure 1. NJ Solar and Solar + Storage Projects Active in the PJM Queue³⁹

Discussion

Pre-qualification requirements

Pre-qualification requirements for participation in the CSI Program should ensure that only serious projects are considered for awards and that projects are only eligible to bid into the tranche(s) for which they qualify. This Straw recommends that projects be asked to demonstrate compliance with pre-qualification requirements in a process that would be conducted approximately one month before bid submission deadlines. Only pre-qualified projects would be allowed to bid into the solicitation. The CSI Program aims to conduct the pre-qualification process in a way that is minimally burdensome for project developers, is transparent and easy to administer, and provides clear, non-ambiguous guidance for pre-qualifying bidders.

³⁹ Data from PJM New Services Queue, <https://www.pjm.com/planning/services-requests/interconnection-queues.aspx>, downloaded 3/17/2022.

Queue position as a pre-qualification requirement

For grid supply projects, queue position, while it is not a perfect indicator of remaining time in the queue or certainty of project completion, is well-suited to the pre-screening process in that it is a clear benchmark that is transparent to both bidders and evaluators, so that it will be clear whether or not projects meet this criterion.

PJM's proposed queue revision would change the phases of the queue, the names of the required interim interconnection reports, and the structure of fees and deposits for projects in the queue. Accordingly, it is not possible to finalize queue position requirements for projects submitted under the new queue rules until the outcome of the PJM queue reform process is known. A discussion of potential benchmarks and requirements under the current process has been included in Appendix 3.

Assuming that PJM's queue reform, or some version of it, is adopted, it seems likely that projects not already in the PJM queue will be unable to demonstrate any queue position (other than a submitted application) until 2026, and that prospects for commercial operation for these projects will be delayed until at least 2028, once allowance is made for completion of the interconnection process and final interconnection, including the construction of any required transmission upgrades.

For solicitations intended to begin in 2022, with rounds repeated at least once every 18 months, Daymark and Staff invite stakeholder responses to two options:

- Base case: Include PJM queue position as a requirement, which will limit applications to projects already in the PJM queue and eligible net metered projects. Potential risks of this approach include less competition and perhaps difficulty in meeting the 300 MW annual target, but the approach would ensure that awarded projects have a reasonable chance of reaching COD within three years.
- Alternative: Do not include PJM queue position as a requirement and instead develop other project readiness measures. This approach requires developing procurement rules to allow for projects awarded CSI SREC-IIs in 2022 or 2023 to potentially not be operational until much later in the decade. Not requiring a certain PJM queue position will likely increase competition; however, there are many unknowns. Could developers facing this kind of wait for PJM interconnection be expected to make any meaningful project commitments, such as acquiring site control? Would NJ ratepayers risk committing to SREC-II prices that are relatively high, compared to prices that might be available several years from now? What kind of project attrition rate should be expected for awards made so far in advance of PJM interconnection studies and potential commercial operation? Additionally, we invite comment on how grid supply

projects interconnecting at distribution voltage or PURPA-eligible projects selling under a PEP or other similar tariff should be treated for project maturity purposes?

Staff seeks comment from stakeholders and suggestions on how to accommodate PJM’s evolving interconnection process.

Bid participation fee

Fees or deposits for projects applying for state subsidies are frequently used as means of ensuring the seriousness of bidders, incentivizing bidders to follow through on project commitments and (in some cases) helping to defray the cost of administering state subsidy programs. Three models can be found in New York, Massachusetts, and Illinois, each of which are described below.

- **New York.** In the New York Renewable Energy Certificates Program (administered by NYSERDA), bidders are assessed non-refundable bid fees in amounts that vary with the size of the projects, ranging from \$1,000 per MW to \$4,000 per MW, as follows:⁴⁰

Table 2. NYSERDA Bid Fees

Nameplate Capacity (MW)	Bid Fee
Less than 5.00 MW	\$5,000
5.00-19.99 MW	\$20,000
20.00 – 49.99 MW	\$50,000
50.00 MW or more	\$100,000

- **Massachusetts.** In Massachusetts, bidders in the SMART Program are required to provide a performance guarantee deposit in amounts that may vary but must not exceed \$25 per kW of capacity (equivalent to \$25,000 per MW).⁴¹ These amounts are refunded to unsuccessful bidders and to selected bidders who meet Program Effective Date requirements.
- **Illinois.** In Illinois, renewable energy product procurements are administered by the Illinois Power Agency. In Illinois’s Renewable Resources Procurement, applicants must pay a non-refundable application fee of \$10 per kW, with a not-to-exceed cap of \$5,000

⁴⁰ NYSERDA, “Purchase of New York Tier 1 Eligible Renewable Energy Certificates (RECs) Request for Proposals (RFP) No. RESRFP21-1,” April 22, 2021, *available at*:

<https://portal.nyseda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000UOhG5EAL>.

⁴¹ 225 CMR 20.00: SOLAR MASSACHUSETTS RENEWABLE TARGET (SMART) PROGRAM, *available at*:

<https://www.mass.gov/doc/225-cmr-2000-final-071020-clean/download>.

per project.⁴² This amount is not returned to applicants; rather it is used to offset program costs and decreases “the administrative fees that would otherwise be taken from the utility RPS budgets.”⁴³

Recommendations on pre-qualification and bid participation fees

This Straw recommends that projects be asked to comply with pre-qualification requirements in a process that would be conducted approximately one month before bid submission deadlines. The following pre-qualification requirements are proposed:

- Pending further consideration of PJM’s proposed changes to the interconnection queue, this Straw recommends tying pre-qualification to the PJM interconnection process but does not make a more specific recommendation at this time.
- This Straw recommends the implementation of a bid fee of \$1,000 per MW. Such a fee is at the low end of the bid fees imposed in other states. The Straw does not recommend the creation of a bid fee cap or provisions for returning fees to bidders; rather, these fees would be applied to help defray the cost of administering the bid process. Projects serving public entities would be exempt from the bid fee.
- For projects not interconnecting via the PJM interconnection process (including grid supply projects interconnecting at distribution voltage or PURPA-eligible projects that qualify to sell energy directly to the utility under a pre-established rate), projects must provide evidence of having filed an interconnection application with the applicable distribution utility and having received conditional approval for their request.
- Projects will be asked to provide evidence of qualification for participation in the specific tranche(s) for which they wish to be considered. For instance, they will be asked to provide siting details, including any intended use of land in restricted categories, such as farmland. Projects intending to construct on such sites will only achieve pre-qualification if there is room under the regulatory cap for development of the project. See the Solar Siting Straw Proposal (the “Siting Straw”), released to the public for comment on March 16, 2022, for further details.⁴⁴

⁴² Illinois Power Agency, “Long -Term Renewable Resources Procurement Plan,” June 7, 2021, p. 172, available at: [https://www2.illinois.gov/sites/ipa/Documents/Final%20Reopening%20Revised%20Long-Term%20Plan%20\(7%20June%202021%20rev\).pdf](https://www2.illinois.gov/sites/ipa/Documents/Final%20Reopening%20Revised%20Long-Term%20Plan%20(7%20June%202021%20rev).pdf).

⁴³ Ibid., p. 172.

⁴⁴ Staff Straw Proposal. In the Matter of Competitive Solar Incentive Program Pursuant to P.L. 2021, C. 169.

Published March 16, 2022.

<https://nj.gov/bpu/pdf/publicnotice/Notice%20Stakeholder%20Meeting%20Siting%20with%20Straw%20included.pdf>

- Projects that intend to construct on land categories where a waiver is required will need to obtain the waiver from the Board as a pre-registration requirement.
- Projects claiming an installed capacity that exceeds 300 kW per acre would need a statement from a certified engineer confirming feasibility of the installation.

Commercial Operation Date and project escrow requirements

Background

Commercial Operation Date requirements would establish the allowable length of time between when notification of an SREC-II award is received and when the unit must be in commercial operation. In order to achieve commercial operation, the project must not only be fully constructed, but it must also have completed the full PJM interconnection process, including construction of any required interconnection upgrades. Projects previously granted conditional certification under the subsection (t) process have received a deadline of two years, indicating that developers have experience developing complex projects on this timeline.

A Commercial Operation Date requirement would mean that a project that does not meet this requirement forfeits its eligibility to receive SREC-IIs. Project escrow requirements, if adopted, would further incentivize completion by the Commercial Operation Date. A project escrow requirement would require bidders who are awarded SREC-II eligibility to provide a security, or an escrow amount, that would be returned only upon successful completion of the project.

Stakeholder input

The majority of the initial feedback received from stakeholders indicated that two years or less from SREC-II qualification award is an appropriate COD deadline for successful projects. Some commenters indicated, however, that projects on contaminated land or landfills may require a longer timeframe in the CSI Program, due to complex permitting processes. These comments, to the best of our knowledge, did not reflect PJM's proposed changes to its queue.

On escrow requirements, responses ranged from preference for no escrow up to a suggested requirement of \$40,000/MW in escrow for either all or for the first 5 MW of the project.

Discussion

The appropriate Commercial Operation Date requirement will need to be determined in conjunction with the final determination of bid pre-qualification requirements--in particular, requirements related to queue position. The more advanced the queue position required, the shorter the appropriate time to commercial operation, though, in all cases, adequate time for construction of interconnection upgrades needs to be allowed for. In addition, Staff and Daymark understand that the PJM interconnection process has historically been subject to delay. It is unknown whether adoption of the proposed queue reform will fully address problems with delay in the queue.

PJM’s current queue reform proposal includes projections for transition timing that would result in completion of Final Interconnection Agreements by mid-2025 for projects in groups up through AG1—that is, projects that entered the queue by mid-2020. Projects that entered before the fourth quarter of 2021 are projected to reach Final Interconnection Agreements by mid-2026. All other projects would be delayed in reaching Final Interconnection Agreements until mid-to-late 2027.⁴⁵

Assuming that the first round of projects are notified of SREC-II awards by January of 2023, PJM’s timing suggests that projects in the first group could reasonably expect to complete the interconnection process within a three-year timeframe.

An analysis of the PJM queue limited to this first group of projects (queue positions AE1 through AG1) expected to complete the PJM interconnection process by mid-2025 AND having a System Interconnection Study already completed shows 822 MW of potentially eligible projects (keeping in mind that some of these projects may be participating in the TI or SREC programs, and there ineligible to participate in the CSI Program, and that others may drop out of the PJM interconnection process for a variety of reasons).

Recommendations on Commercial Operation Date and project escrow requirements

This Straw proposes the following related to commercial operation and project escrow requirements:

- A COD deadline of three years from notification that the project has qualified for SREC-IIs.
- Projects that miss their COD deadline without receiving an extension, or that receive an extension and miss their extended COD deadline, will lose their SREC-II qualification as well as any eligibility to construct solar on farmland that may apply. Such projects will be eligible to compete again in subsequent competitive SREC-II procurement rounds without advantage or disadvantage, on equal footing with other projects. However, any siting waiver obtained by a project not selected in the CSI program would remain valid for five years, at which point they would have to reapply for a waiver.
- Projects can demonstrate that they have reached commercial operation by receiving permission to operate and submitting a post-construction certification package to the SuSI Program registration administrator.⁴⁶

⁴⁵ See: PJM. Interconnection Queue Reform. March 15, 2022. Slide 5: <https://www.pjm.com/-/media/committees-groups/task-forces/iprtf/2022/20220315/20220315-item-02-transition-to-cycle-process-and-tariff-revision-information.ashx>

⁴⁶ [https://njcleanenergy.com/files/file/TI%20Program/Transition%20Incentive%20Program%20Final%20As-Built%20\(Post%20Construction\)%20Checklist%20.pdf](https://njcleanenergy.com/files/file/TI%20Program/Transition%20Incentive%20Program%20Final%20As-Built%20(Post%20Construction)%20Checklist%20.pdf)

- Staff is not recommending inclusion of project security deposit requirements in this CSI Program, on the grounds that projects participating in the PJM queue process are already required to provide increasing payments as they make their way through the process. Additional significant financial requirements might prove overly burdensome.

C. Auction procedure

Within each tranche, winning bids will be determined by ranking the offers in terms of proposed price per SREC-II and selecting the lowest-priced offers, as required by Section 4(f) of the Solar Act. This section discusses the following:

- MW procurement targets for each tranche
- The order in which tranches will be evaluated/provisions for projects to compete in multiple tranches

Background

The Solar Act of 2021 mandates that New Jersey’s competitive solar solicitation process should result in contracts of at least 300 MW per year, on average, through 2026.⁴⁷ The proposed tranche system is intended to ensure that the overall procurement will include at least some solar in certain targeted categories. The procurement is intended to provide the best possible value for New Jersey consumers.

Stakeholder input

Two stakeholders commented on the issue of MW tranche targets and suggested that targets should include more than 130 MW of greenfield grid supply, 65 MW of “built environment” supply, 65 MW of supply on contaminated sites and landfills, and 40 MW of non-residential net energy metered supply greater than 5 MW.

In addition, NJBPU received a comment on the distinction between awarded projects and constructed projects, urging that the 300MW target should be considered to apply to constructed projects, and that it is not a maximum. The comment noted the possibly delays associated with PJM queue reform as a reason for soliciting additional capacity over the next five years, arguing that doing this “would also send a clear signal to the solar industry that the state is committed to aggressively building out renewable capacity to achieve greenhouse gas reduction goals which will prompt a flurry of development activity.”

⁴⁷ For the purposes of this Straw, this is considered to be 300 MWdc.

Discussion: Procurement targets

An approach contemplated, was to establish spending targets, rather than quantity targets, for each tranche. This approach may have the desirable effect of introducing flexibility into the procurement, with lower prices resulting in more MW procured, and higher prices resulting in fewer MW procured.

However, in considering how such an approach would be implemented in the CSI Program, it became apparent that it would require that the Board make assumptions regarding the price of bids received, which might inadvertently skew bidding behavior. One of the key benefits of competitive bidding is that it reveals competitive prices. In future years, once price information is available from the first procurement, it may be appropriate to revisit a per-tranche spending target approach.

Recommendations: Procurement targets and confidential bid caps

For the initial procurement, this Straw recommends a per-tranche MW procurement target, with total per-tranche procurement targets summing to 300 MW (the storage target does not count toward the total 300 MW target, since it does not, in itself, represent additional solar capacity). Because at this early point it is difficult to predict the prices likely to be seen in each tranche, Staff recommends that the Board reserve the right to supplement these MW targets with confidential, pre-determined price caps for any or all tranches, above which further procurement in the tranche will not be undertaken, even if the result is less procurement in that tranche than was initially targeted for that year.

Proposed per tranche MW procurement targets

The initial procurement targets are set with the aim of balancing least-cost procurement with supporting the particular kinds of projects represented in the tranches. In cases in which Basic Grid Supply is more expensive than Grid Supply on the Built Environment or Grid Supply on Contaminated Sites and Landfills, the more specialized tranches will be preferred, even if it means exceeding their targeted procurement amounts and procuring less Basic Grid Supply than targeted.

Daymark and Staff considered the following data points in proposing targets for the specific tranches:

- In the ten years from 2012 through 2021, an average of 22 MW per year of Subsection (t) solar capacity (on “brownfield, on an area of historic fill or on a properly closed sanitary landfill facility”) received Permission to Operate.⁴⁸

⁴⁸ Source of data: Installation Data, <https://www.njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports>

- The TI Program received a robust response from large (> 5 MW) net metered projects of approximately 120 MW, or on average 40 MW per year,⁴⁹ suggesting that there could be significant potential participation by large net metered projects. The initial target of 40 MW is intended to ensure adequate scope for other targeted project types.

Table 3. Proposed Year 1 Target Procurements by Tranche

Tranche Number	Tranche	Initial Procurement target
1	Basic Grid Supply	140 MW
2	Grid Supply on the Built Environment	80 MW
3	Grid Supply on Contaminated Sites and Landfills	40 MW
4	Net Metered Non-residential Projects above 5 MW	40 MW
	Total	300 MW
5	Storage	160 MWh

Projects will be awarded SREC-IIs up to the last project that does NOT exceed the procurement target. When two projects with exactly the same bid price, taken together, will exceed the procurement target, but one or either by itself, does not, the Board would reserve the right to make a determination.

In proposing these initial targets, Daymark and Staff recognize that there may be “lumpiness” in the procurement that mean that targets cannot be met exactly. In these cases, the Board may choose to exceed targets if the marginal projects offer good value to New Jersey consumers.

Discussion: The order of tranche evaluation and provisions for projects to compete in multiple tranches

Projects may compete in all tranches for which they are eligible; however, each project can be awarded SREC-IIs only once. As a result, the order in which tranches are considered is important.

The significance of tranche evaluation order can be explained by walking through two hypothetical examples of a procurement: one in which the first tranche considered is Basic Grid Supply (Method 1) and a second in which the first tranches considered are the specialized tranches of Grid Supply on the Built Environment and Grid Supply on Contaminated Sites and Landfills (Method 2).

⁴⁹ Source of data: Pipeline Data and Installation Data, available at <https://www.njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports>

Method 1: In the initial Basic Grid Supply evaluation (Method 1), all grid supply projects (that is, Basic Grid Supply, Grid Supply on the Built Environment, and Grid Supply on Contaminated Sites and Landfills) would be eligible to compete, with the lowest-priced projects gaining awards, up to the projected annual SREC-II MW target for the Basic Grid Supply tranche. Some of these awards might go to well-priced projects in specialized tranches—for instance, to projects otherwise eligible to compete in the Grid Supply on the Built Environment tranche. These projects, having been awarded SREC-IIs in the first round under the Basic Grid Supply tranche, would then be removed from consideration in the specific Grid Supply on the Built Environment tranche. As a result, other, less-competitive projects in that tranche would be able to qualify for SREC-IIs in the solicitation run specifically for Grid Supply on the Built Environment. The result might be that more projects in preferred categories would be awarded, but at a potentially higher SREC-II costs for the specialized tranches. These costs might be offset by lower overall procurement costs for Basic Grid Supply.

Method 2: In this approach, the specialized tranches of Grid Supply on the Built Environment and Grid Supply on Contaminated Sites and Landfills would be evaluated first (the order of the evaluation of these two tranches does not matter). The lowest-cost projects from each would be selected, up to the tranche MW target, and selected projects would be removed from further consideration. All remaining projects from these tranches and all Basic Grid Supply projects would be considered next in the Basic Grid Supply tranche. Because the lowest-cost projects from the specialized tranches would have already been removed from consideration, however, it would be less likely that projects from specialized tranches would be selected in the Basic Grid Supply round.

The figures below use a hypothetical sample of projects to illustrate how the different procurement methods could impact overall procurement results.

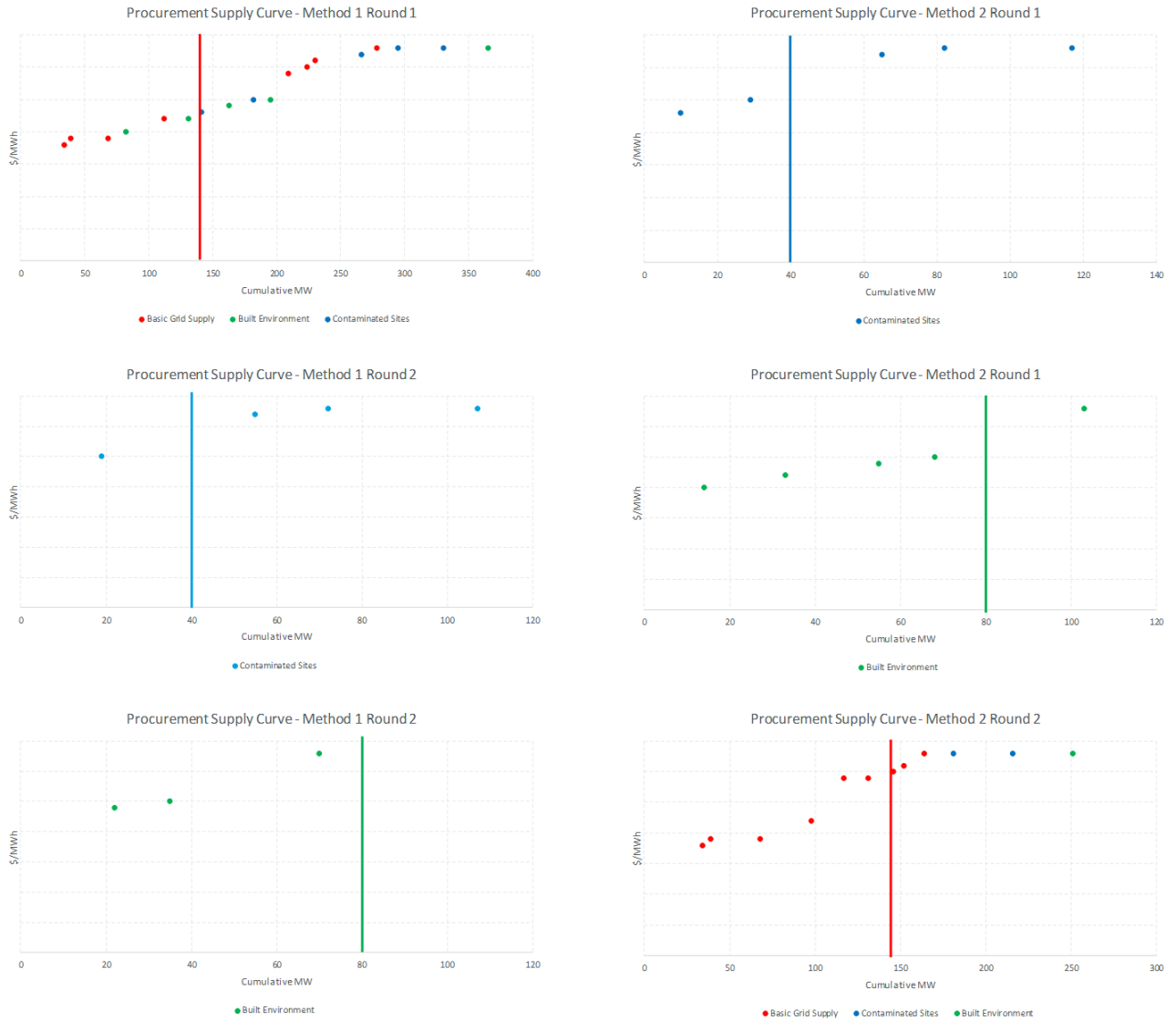


Figure 2. Comparison of Procurement Results, Method 1 and Method 2

As is shown in Figure 2, given the hypothetical sample projects used, in Method 1, the first round procurement selects a mix of the best-priced grid supply, built environment, and contaminated land projects. The Round 2 procurement meets the MW targets for specialized tranches by choosing among the projects not selected in Round 1. In Method 2, Round 1 only selects projects in the specialized tranches of contaminated land and built environment, and Round 2 selects basic grid supply projects, as well as contaminated land and built environment projects not otherwise selected in Round 1.

The overall cost result in this hypothetical example is a slightly higher SREC-II price in Method 1, but the increase is modest, because higher prices in the specialized tranche procurements are offset by a lower price for Basic Grid Supply. Method 1 results in more of the total MW acquired coming from Built Environment and Contaminated Sites and Landfills projects.

The above example and figure is merely illustrative. Actual price and quantity effects of tranche evaluation order would depend on the comparative profile of the projects that bid into the process. If Contaminated Sites and Landfills, and Built Environment projects are all significantly more expensive than most Basic Grid Supply projects, evaluation order would end up having no impact on the final portfolio of selected projects. On the other hand, if there is a wide cost spread for projects within the Contaminated Sites and Landfills, and Built Environment categories, adoption of a Method 1 approach could tend to raise overall procurement costs. The risk of a significant increase in costs would be limited if confidential project cost caps are established within each tranche.

Recommendations related to tranche evaluation order:

Given that potential cost impacts can be minimized by confidential project cost caps, and that Method 1 opens up the possibility for greater procurement from preferred tranches, the Straw recommends the use of procurement Method 1. The order of evaluation would therefore be as follows:

Tranche 1: Basic Grid Supply. These projects would be awarded up to the point at which the tranche MW target is met, assuming there are sufficient projects. Projects from Tranche 2 and Tranche 3 would be eligible to compete in this category. Projects selected in this first tranche would no longer compete in Tranche 2 or Tranche 3.

Tranche 2: Grid Supply on the Built Environment. These projects would be awarded up to the point at which the tranche MW target is met.

Tranche 3: Grid Supply on Contaminated Sites and Landfills. These projects would be awarded up to the point at which the tranche MW target is met.

Tranche 4: Net Metered Non-residential Projects above 5 MW (these projects are only eligible for consideration in this tranche). These projects would be awarded up to the point at which the tranche MW target is met.

Tranche 5: Storage Paired with Grid Supply Solar. Only projects that receive SREC-II awards as stand-alone projects in Tranche 1, 2, or 3 and that also include storage would be considered. Storage awards would then be made by price of the proposed storage adder, up to the targeted amount of support for 160 MWh of storage.

Compliance with land use restrictions

Throughout the bid selection process, the CSI Program administrator will track awarded projects that intend to use land categories subject to a cap, as set forth in the Siting Straw. The restrictions involve solar development on prime agricultural soils or soils of Statewide importance that are in Agricultural Development Areas (“ADAs”). The specific definitions and calculation methods are defined in the Siting Straw.

If at any point, the acreage of projects selected for bid awards reach any of the caps on use of covered farmland, no further projects using that category of farmland will be selected. Instead, once an agricultural land use cap is reached, any projects sited on farmland subject to that specific cap will be skipped and the next-most-competitive bid will be selected instead.

Projects that intend to construct on land categories where a waiver is required will need to obtain the waiver from the Board as a pre-registration requirement.

D. Auction price result (pay-as-bid vs. single clearing price)

Daymark and Staff considered both a pay-as-bid approach to SREC-II awards and a single clearing price approach.

Background

The Solar Act of 2021 mandates the creation of renewable energy certificates, or SREC-IIs, “for each megawatt hour of energy produced by a qualifying solar electric power generation facility...” and mandates that SREC-II renewable energy incentive payments “shall be measured in dollars-per-megawatt-hour of solar power generation” and “shall represent the value of the environmental attribute produced by the solar electric power generation facility.”⁵⁰ For competitively awarded SREC-IIs, the Board is given the power to establish the value per

⁵⁰ N.J.S.A §48:3-117(2)(b)

megawatt-hour for selected projects.⁵¹ There is no requirement that the SREC-II value should be the same for all awarded projects.

Stakeholder input

Stakeholder input has not yet been received on the question of a pay-as-bid vs. a single clearing price approach.

Discussion

Single clearing price approach

Under a single clearing price approach, within each tranche, bidders would all receive the same value of SREC-II (this price would be at or near the price of the highest-priced bid selected). Under this approach, low-priced bids would benefit from receiving a higher SREC-II price than their minimum requirement. A version of a single clearing price approach is used in RTO energy markets. The chief benefit of this approach is that bidders all have the incentive to offer the lowest price that would be acceptable to them—knowing that if they succeed in being awarded SREC-IIs, they will likely receive a higher price than what they bid. This incentive to enter the lowest acceptable bid may result in lower costs to consumers. There is a secondary benefit of greater simplicity of administration, as all bidders within a given tranche would receive the same SREC-II value.

One major concern with this approach is that in a tranche with relatively few bids and a wide range of bids, the savings obtained through bidding incentives might be offset or more than offset by the influence higher-priced bid could have on overall prices. Given that NJBPU will be conducting this process for the first time and has little basis for anticipating likely bid prices or number of bids likely to be received in each tranche, the potential for this kind of price distortion is a serious concern.

Of greater concern for this procurement, however, is how a single clearing price approach would interact with the proposed tranche procurement structure. If all successful bids in each tranche receive a single clearing price, but these prices differ from tranche to tranche, there could be significant financial benefits to being in one tranche as opposed to another—setting up a situation in which bidders would need to strategically target their bids to try to ensure they end up in the highest-priced tranche, resulting in distorted bidder behavior.

Pay-as-bid approach

A pay-as-bid approach is widely applied in other state renewable energy procurements and is well-adapted for procurements that must consider bids from diverse types of projects.⁵² Under

⁵¹ N.J.S.A §48:3-117(4)(c)

⁵² See NYSEDA Report 15-12 at Section 5.3.1 and Illinois Power Agency Long Term Renewable Resources Procurement Plan, 8/16/2021, at Section 5.3.

a pay-as-bid approach, successful bids receive SREC-IIs valued at the amount of their bid. The advantage here would be that in no case does New Jersey end up paying higher SREC-IIs than bid. The disadvantages are, first, that bidders in this system are incentivized to submit the highest bids they think might be successful, and second, the administrative complexity of a system in which each successful bid gets a distinct SREC-II price.

In preparing this Straw, Daymark conducted a preliminary exploration of the issue of administrative complexity through discussions with Incline, the contracted administrator for New Jersey's SREC-IIs. This initial conversation suggests that the administrative burden of a pay-as-bid approach would be minimal.

Recommendation on single clearing price vs. pay-as-bid

This Straw recommends a pay-as-bid approach for these SREC-II procurements. The recommendation for the use of the pay-as-bid approach is primarily based on considerations of how the payment structure will interact with the proposed tranche system and the impact on bidding behavior. In a single clearing price approach, the value of SREC-IIs received may vary greatly depending on the award tranche—an effect that may create unintended bidder behavior incentives.

E. SREC-II payment structure

Background

The Solar Act of 2021 specifies that projects selected under the CSI Program have the “right to receive a renewable energy incentive payment, in the form of an SREC-II value per megawatt-hour established by the board, for the environmental attributes produced by the solar electric power generation facility.”⁵³ Given this language, the CSI Program is limited to compensating projects for their environmental attributes but does have some freedom as to the structure of the SREC-II.

The two general options under consideration are Fixed SREC-IIs and Indexed SREC-IIs. In the Fixed SREC-II option, the project would be awarded a fixed incentive for each MWh generated by the project. In the Indexed SREC-II option, the project would receive a variable incentive SREC-II payment that is a function of a bid strike price and indices linked to actual outcomes in the energy and capacity markets.

In theory, the Indexed SREC-II approach would provide greater revenue certainty for project developers, enabling them to receive better project financing terms, and thus also enabling them to present lower cost offers in the solicitation. NYSERDA provides bidders in its Tier 1

⁵³ N.J.S.A §48:3-117(4)(c)(4)

procurements with an option for an Indexed REC structure with this consideration in mind.⁵⁴ However, to the extent that Indexed SREC-IIs remove risk from developers, they may increase the risk to ratepayers, since total paid subsidy amounts would be less predictable from year to year and overall under an Indexed SREC-II approach.

Stakeholder Input

Although feedback on Fixed REC versus Indexed REC payments was not explicitly requested in the initial stakeholder outreach, stakeholder comments from developers related to REC payment structures generally supported approaches that provide greater financial certainty to projects, especially Indexed RECs.

In addition, stakeholders noted the advantages of longer contract terms for obtaining financing, and several noted that it is sensible to have payment periods that match or more closely approach the asset's economic life (therefore preferring 20 years).

Finally, Daymark and Staff asked stakeholders to comment on the adequacy of the prevailing approach the Board has used to implement REC payments, which is via administrative rules, versus an alternative approach using contracts. Stakeholders were largely split on this issue, with some suggesting that the status quo has been adequate to support projects, while others argued that contracts would provide benefits in obtaining financing.

Discussion: Indexed RECs vs. Fixed RECs

In order to assess the likelihood that, in general, an Indexed SREC-II approach, in addition to providing greater certainty for developers, would also result in savings for ratepayers in terms of the total subsidy amount required, Daymark performed a Monte Carlo analysis of expected outcomes in terms of project cash flow for projects with Indexed RECs and projects with Fixed RECs. The analysis used historical data and hypothetical project costs to create a range of possible outcomes and analyze the likely impact of the two approaches on the Weighted Average Cost of Capital ("WACC") for each project and on the total REC payments expected over time.⁵⁵

For Daymark's hypothetical 300 MWdc procurement, our analysis found that in the majority of cases, estimated total Indexed REC payments were lower than estimated Fixed REC payments. However, there were some scenarios in which Indexed REC payments were higher overall.

⁵⁴ Case 15-E-0302. "Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order modifying tier 1 Procurements," January 16, 2020.

⁵⁵ This Straw refers to "Indexed SREC-IIs" and "Fixed SREC-IIs" when referring specifically to proposals for SREC-IIs in New Jersey. References to "Indexed RECs" and "Fixed RECs" are used when what is being discussed is the general properties of Indexed RECs and Fixed RECs, not specific to New Jersey.

It should also be noted that the analysis makes the implicit assumption that the overall market structure will remain relatively static. In the light of the evolving regulatory landscape and the accelerating energy transition, this assumption may prove inaccurate, which would increase the risk to ratepayers of Indexed RECs.

Recommendation on Indexed RECs vs Fixed RECs

Staff is not including a recommendation at this time, but Daymark and Staff invite additional comments from stakeholders on the use of Indexed SREC-IIs versus Fixed SREC-IIs. Details on Daymark’s analytical approach are provided in Appendix 2.

Discussion: SREC-II term

The standard term for administrative SREC-IIs in New Jersey is fifteen years. Although a longer term was preferred by some of the project developers who commented, a shorter term carries benefits in terms of consistency of administration and also in terms of minimizing the risk to New Jersey ratepayers inherent in a longer payment commitment. This becomes even more vital if the Board were to decide to take an Indexed SREC-II approach, which would offer greater certainty to developers, while taking on greater risk to consumers—a risk that grows the farther out projections for energy and capacity markets must reach, and the greater the uncertainty about whether there may be significant changes in average energy and capacity revenues.

Recommendation on SREC-II term

The Straw recommends maintaining the 15-year SREC-II term.

Discussion: Administrative vs. contract implementation

All of New Jersey’s REC payments take the form of administrative awards, rather than individual contracts. Although contracts might seem to offer greater certainty to project developers, the process of developing individual contracts that would need to be tailored to (and perhaps negotiated with) individual SREC-II recipients would be time-consuming and might result in significant delays between completion of the SREC-II award process and implementation of SREC-II awards.

Recommendation on administrative vs. contract implementation

Because the administrative approach is well-established precedent and is working well in New Jersey, Daymark and Staff propose that the CSI Program SREC-IIs also be awarded administratively, avoiding complexity and effort associated with executing individual SREC-II contracts.

F. Procurement frequency

Background

The Solar Act of 2021 requires that solicitation rounds “occur at least as frequently as once every 18 months.”⁵⁶

Stakeholder Input

One stakeholder emphasized that 18 months is the maximum time between procurements and recommended “that to create a robust program to attract development...the board creates ample procurement supply with more frequent solicitations to provide multiple entry points for project development.”

Discussion

In setting a proposed procurement frequency, it is desirable to make the process frequent enough that there are multiple entry points for developers. On the other hand, minimizing administrative costs and maximizing the opportunity for robust competition in each procurement are also important considerations.

PJM’s queue reform proposal is also a factor to be considered. To the extent that PJM’s reforms will significantly delay the ability of projects to participate in SREC-II solicitations after the initial solicitation, allowing more time between solicitations might be considered in order to accommodate the PJM process.

Recommendation on procurement frequency

In order to promote access to the program, Staff proposes that solicitation rounds be held annually, but suggests that this annual schedule be subject to review and revision in light of changes to the PJM interconnection process.

⁵⁶ N.J.S.A §48:3-117(4)(c)

V. QUESTIONS FOR STAKEHOLDER FEEDBACK

Bid tranches

1. Please comment on the proposed definitions of the different tranches. Do they clearly indicate what types of projects will be eligible, especially for the Grid Supply on the Built Environment tranche and the Grid Supply on Contaminated Sites and Landfills tranche? Are any clarifications needed?
2. Are the types of projects included in each tranche appropriate to compete against each other? Why or why not?
3. Is a maximum land area of 10% “Associated disturbed areas” for Grid Supply on Contaminated Sites and Landfills appropriate? Why or why not?
4. What reforms would be most helpful to enabling public entities to participate in the CSI Program? Would bid process support or formalized bidding assistance be of use to public entities?
5. The Straw Proposal does not currently envision differentiating between net metered projects based on location (that is, no special consideration for net metered projects on contaminated land, for example, or for rooftop as opposed to ground-mounted net metered projects). Please comment.

Storage

6. Please comment on the proposed structure of the storage bid and incentive.
7. Will the proposed storage adder tranche opportunity change bidding behavior? If so, how?
8. Net metered projects are currently not recommended to be able to compete for a storage adder. Please comment.
9. Do you anticipate that within the next five years, adding storage to a project will reduce the overall SREC-II support needed, rather than increase it?

Project qualification and maturity

10. Please comment on PJM queue position as a pre-qualification requirement and the implications of PJM queue reform. If PJM queue position were not a requirement, what alternatives should the Board consider?
11. Under the proposed Base Case pre-qualification requirements, and given PJM’s proposed queue reforms, the first CSI solicitation would be limited to projects already in the PJM queue. Staff requests input on how to interpret available information about the number and overall MW capacity of solar projects in the PJM queue. Is there any reason to expect higher or lower levels of attrition than were seen in the 2013-2019 period?

12. At what stage in the PJM queue process do projects typically secure project funding?
13. Do PJM's proposed changes to the interconnection process change the relevant considerations around project queue position? If so, how?
14. Do developers expect to use state-jurisdictional interconnection processes or distribution-level interconnections to avoid the PJM queue? How should maturity requirements be developed for such projects? Are there other factors that the Board should consider?
15. Please comment on the proposed pre-qualification requirements other than interconnection queue position.
16. The ADI Program requires that projects submit a Post Construction Certification Package prior to their registration expiration. Is this practice appropriate for the CSI Program?
17. Please comment on the proposed bid application fee. Should Staff consider capping this fee, or including provisions for returning the fee? Why or why not?
18. Currently, Staff is not recommending per bidder award limits or project size limits. Should such limits be included? Why or why not?
19. What is the approximate size range of projects likely to be bid?
20. Would developers bid multiple projects on the same land? Should the Board allow developers to submit multiple mutually exclusive bids?

Auction procedure

21. Please comment on the proposal to conduct solicitations for all tranches in a single procurement.
22. Are the proposed MW capacity targets for solar development appropriate for each tranche? Why or why not?
23. Is the storage tranche appropriately sized in the proposal? Why or why not?
24. The proposed tranche evaluation order (see Discussion: The order of tranche evaluation and provisions for projects to compete in multiple tranches on page 37) is preferential towards the procurement tranches for Grid Supply on the Built Environment and Grid Supply on Contaminated Sites and Landfills, even if procurement in these categories is above the initial targets. Please comment on this approach.

Auction price result

25. Please comment on the proposed adoption of a pay-as-bid auction price.

SREC-II payment structure

26. Please comment on the relative advantages and disadvantages of Indexed SREC-II versus Fixed SREC-II.

27. Please comment on the risk to ratepayers for Indexed RECs related to longer term price volatility in the Energy and Capacity markets.
28. Please comment on the risk to ratepayers for Indexed RECs related to market structure evolution in the Energy and Capacity markets.
29. Please comment on the proposed qualification life of fifteen years.

Procurement frequency

30. Please comment on the proposed annual procurement.
31. How much time should there be between the Board authorizing the CSI program, and the first procurement?
32. How many months between notification of the results of one year's procurement and the due date for bid pre-qualification for the next procurement would be optimal?
33. Would it be beneficial to "time" the procurement with regard to the PJM queue? If yes, how?
34. How much time should there be between the Board authorizing the CSI program, and the first procurement?

APPENDIX 1: SOLAR PLUS STORAGE FLOW CHART EXAMPLES

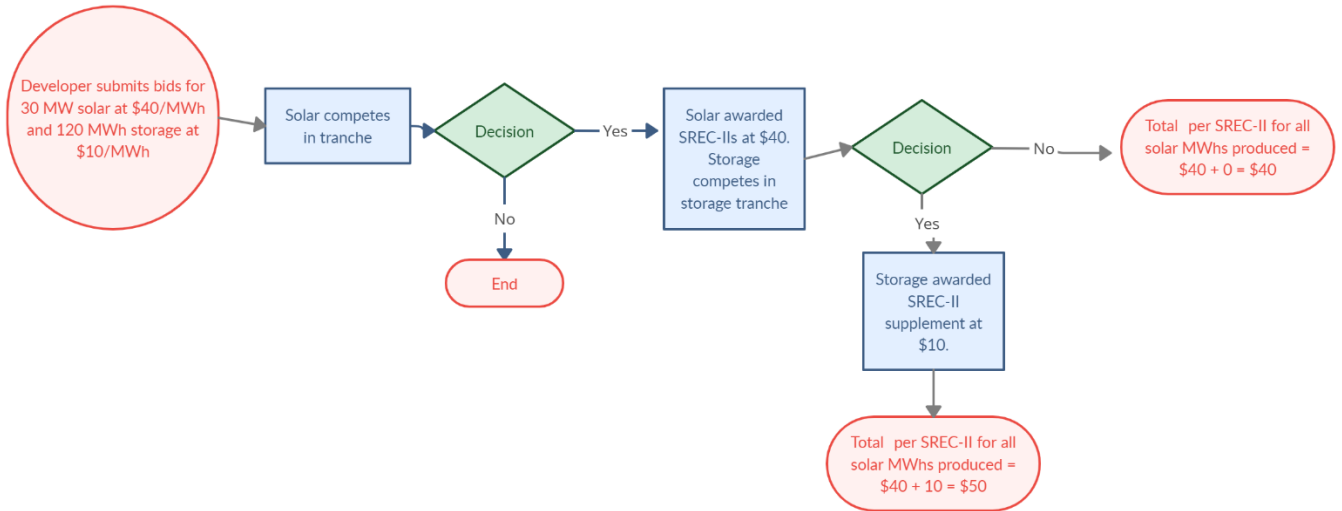


Figure 3. Solar Plus Storage Project, 100% Capacity Match

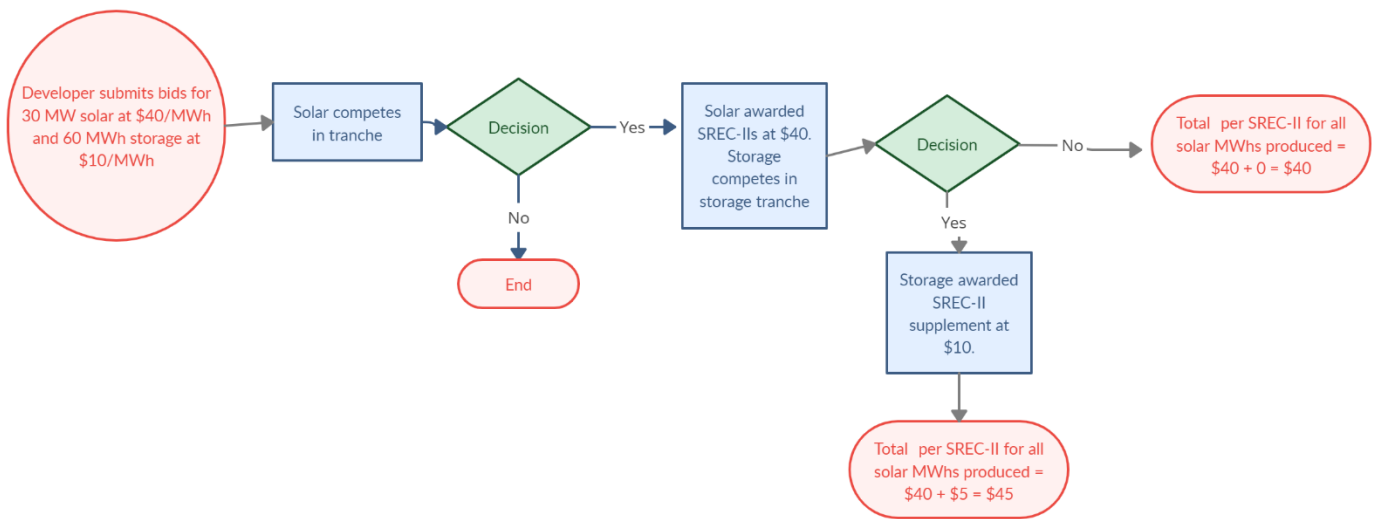


Figure 4. Solar Plus Storage Project, 50% Capacity Match

APPENDIX 2: INDEXED RECS VS. FIXED RECS ANALYSIS

Some stakeholders, including the Solar Energy Industry Association (“SEIA”) and several developers, mentioned that Indexed RECs are a key feature they desired in the CSI Program design. New York has adopted an Indexed REC approach to their state renewables procurements.⁵⁷ Daymark conducted an analysis to understand if switching to an Indexed REC approach would benefit New Jersey ratepayers. The objective of the analysis was to understand both the impact of switching to Indexed RECs on the expected cost to ratepayer and the risk to ratepayers if market conditions differed from expectations.

What is an Indexed REC?

In previous NJBPU procurements, developers have been awarded Fixed RECs. With Fixed RECs, the project is awarded a fixed incentive for each MWh generated by the project for a defined number of years. While the developer’s REC revenue is fixed, a grid supply project’s revenue from energy and capacity markets varies with wholesale markets. With Indexed RECs, the developer would bid a “strike price,” which represents the per MWh all-in revenue sought by the developer. The project receives a variable incentive payment that is a function of a bid strike price and indices linked to actual outcomes in the energy and capacity markets. This means that in the Indexed REC construct, ratepayers pay a variable REC incentive. Below is a graphical representation of the two options.

⁵⁷ An overview of New York’s “Index REC” approach can be found in the document, *NYSERDA Comments on the AWEA/ACE-NY Petition Regarding Integration of an Index REC Procurement Structure into Tier 1 REC Procurements Under the Clean Energy Standard*. Submitted by the New York State Energy Research and Development Authority, October 2, 2019. Available at: <https://www.nyserdera.ny.gov/-/media/Files/Programs/Clean-Energy-Standard/2019/2019-10-02-NYSERDA-Comments-on-Petition-on-Index-REC-Structure.ashx>

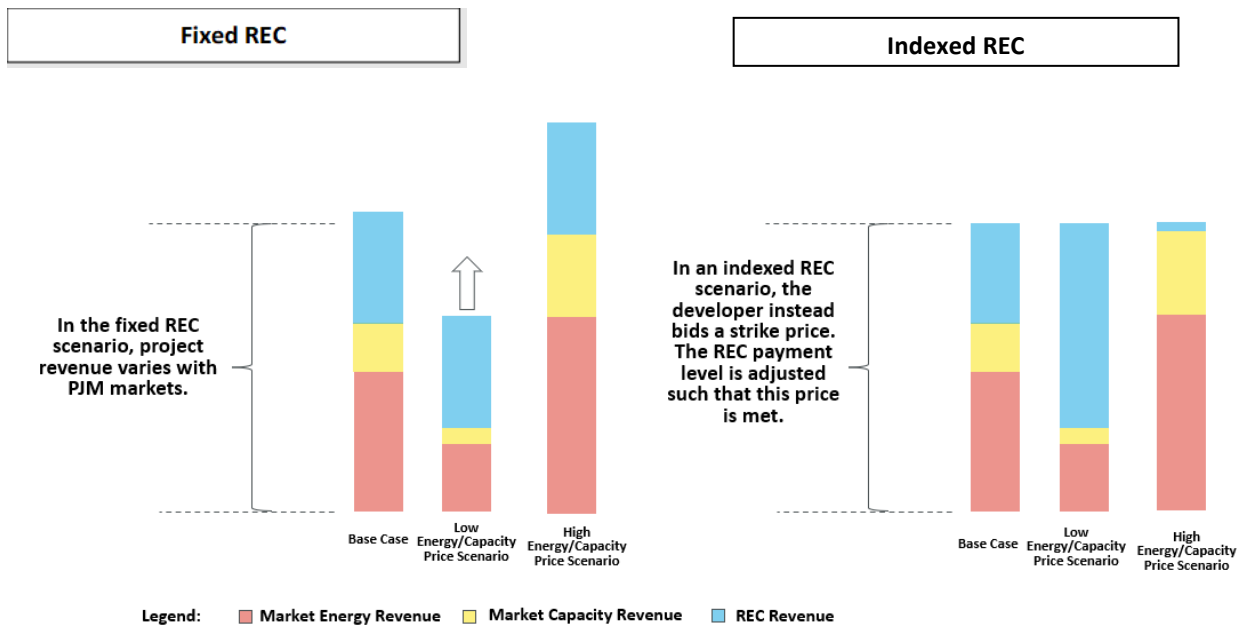


Figure 5. Fixed RECs vs. Indexed RECs

Impact on developer risk

Developer revenue risk impacts the weighted average cost of capital for a project. Less risky projects are expected to be able to access less expensive capital and would therefore be able to bid lower prices in the CSI Program. Under a Fixed REC contract, the developer has four primary types of risk: capacity market risk, energy market price risk, production risk, and basis risk. By providing the project an all-in price per MWh of energy produced, the Indexed REC contract would remove two of these risk factors – capacity and energy market risk. These two risk factors are shifted to ratepayers, who effectively serve as an underwriter in cases where capacity or wholesale energy market revenues are lower than expected. The production risk and basis risk would continue to be borne by developers.

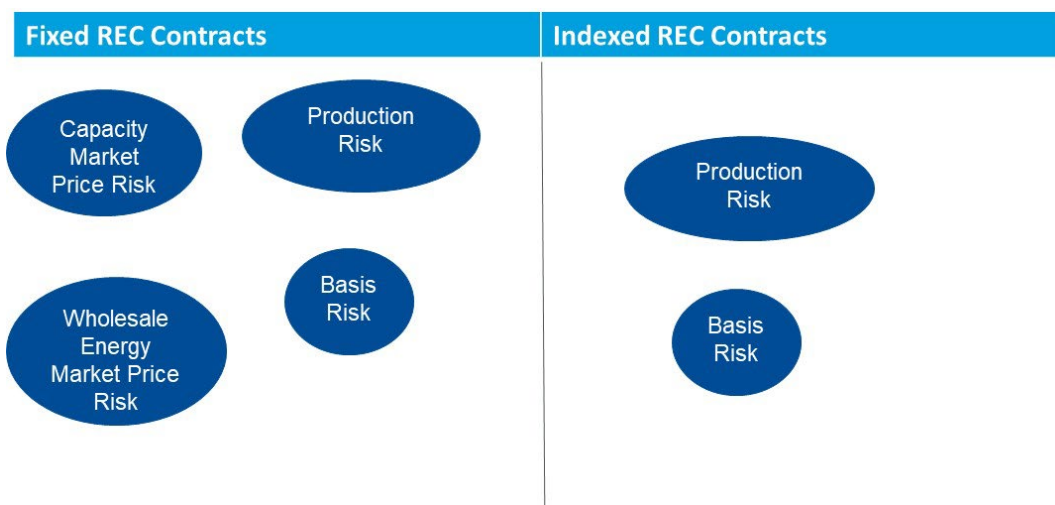


Figure 6. Developer Risk with Fixed REC and Indexed REC Contracts

Daymark analysis

Daymark developed an analysis to understand two potential impacts of switching to Indexed RECs:

- Impact on REC price associated with developers’ revenue uncertainty risk; and
- Impact on overall ratepayer cost due to risks associated with variable REC payment structure.

Calculating impact on REC price associated with developers’ revenue uncertainty risk

The first step in the analysis was to calculate the impact on expected REC prices associated with the reduced risk in an Indexed REC contract. To do this, Daymark first calculated the impact of using Fixed versus Indexed RECs on the WACC and then calculated the impact on expected REC price.

Daymark developed an Excel model of two identical solar projects (same nameplate capacities, capital and operating expenses and production profiles). One of the projects had a Fixed REC contract structure and the other had an Indexed REC structure.

Daymark then developed a Monte Carlo analysis of the revenues for the projects under the two different contract structures. The revenue in the Fixed REC structure was assumed to be market energy and capacity revenues plus the Fixed REC, and the revenue for the Indexed REC structure was assumed to be the strike price bid by the developer. The distribution of energy and capacity revenues was based on historical energy and capacity market prices over the last 10 years. The median values for energy and capacity were used to create a shared forecast of revenues for both projects. The initial Fixed REC and strike price values were calculated by

determining the required price to yield an NPV of zero, assuming median historical energy and capacity revenues and a WACC of 5%.⁵⁸

The Monte Carlo distributions of deviations from energy and capacity reference price forecasts were applied to both projects. The Indexed REC project witnessed a constant cash flow in all simulations during the contract period, whereas the Fixed REC project had a varying cash flow for each year.

To determine the impact of the Indexed REC on the hypothetical developer’s WACC, Daymark determined the WACC that would make the variable cash flows in the Fixed REC contract equal to the fixed cash flows in the Indexed REC contract. Daymark did this by equating the REC cash flow distribution risk to the Indexed REC cash flow distribution risk by varying the Fixed REC project WACC through a Conditional Value at Risk (“CVar”) methodology.

Next, Daymark used the new increased WACC to estimate the required Fixed REC price that corresponds to the index price calculated above. Daymark completed the analysis for the base assumption capital expenditures of \$1200/kW and a higher cost sensitivity.

Figure 7, below, summarizes the structure of the model described above, and Table 4, below, shows the results of the analysis. It shows that for the base assumptions, the impact on WACC is about 0.25 percent, which results in an expected REC savings of about \$1.56/MWh.

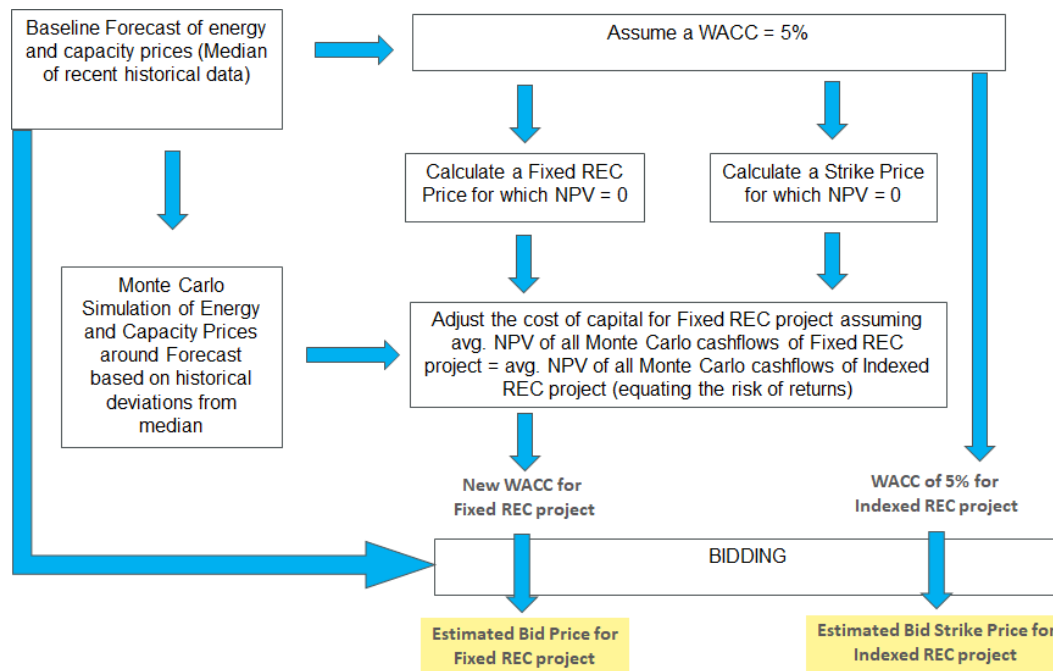


Figure 7. Daymark Model Structure

⁵⁸ <https://www.nrel.gov/docs/fy20osti/76881.pdf>

Table 4. Results of Analysis

	Capex \$/kW _{DC}	WACC Difference	15-year Fixed REC Price	15-year Strike Price	Average Indexed REC Price =	Indexed REC Price – Fixed REC Price
Base Assumption	\$,1200	0.24%	\$41.11	\$76.58	\$39.55	\$1.56
Higher Cost Solar	\$,1950	0.16%	\$83.34	\$117.97	\$80.94	\$2.40

Impact on ratepayers

The next step in the analysis was to understand how ratepayers would be impacted by a change to Indexed RECs. Daymark used the same model to simulate ratepayer REC costs with a Monte Carlo analysis. In the case of the Fixed REC, the ratepayer costs were constant across all draws, while the ratepayer costs varied with market costs for the Indexed RECs. According to this analysis, ratepayers were better off more than 75 percent of the time in the Indexed REC case.

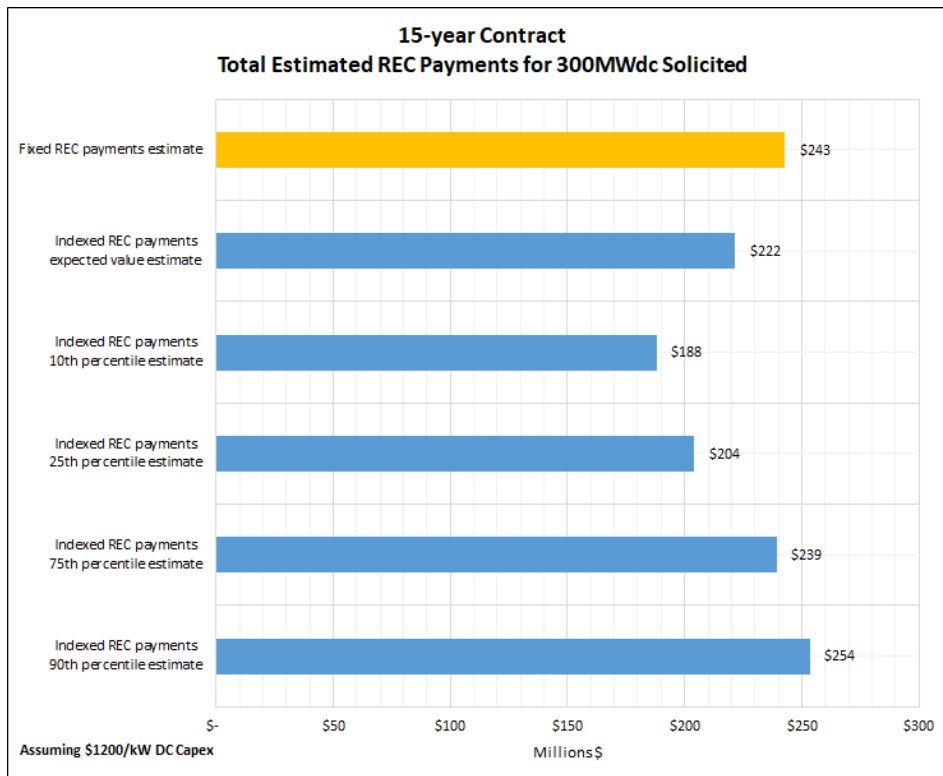


Figure 8. Ratepayer Costs

APPENDIX 3: PJM’S CURRENT QUEUE PROCESS

Queue phases

Under the current PJM queue process, large projects (greater than 20 MW) in the PJM queue move through the following phases:

- Feasibility Study underway
- System Impact Study underway
- Facilities Study underway
- Development of Interconnection Service Agreement
- Signed Interconnection Service Agreement. Smaller projects (20 MW or less) may be eligible for a streamlined process, in which the Feasibility and System Impact Studies are combined, and the Facilities Study is waived.

Each of the required studies requires time to complete and requires funding from the applying project. Throughout the process, projects drop out of the queue for a variety of reasons. A review of withdrawn solar projects in New Jersey from 2013–2019 shows that, among the roughly 65% of projects that withdrew at some point, almost two thirds withdrew before completion of the System Impact Study, and more than three quarters withdrew before completion of the Facilities Study.

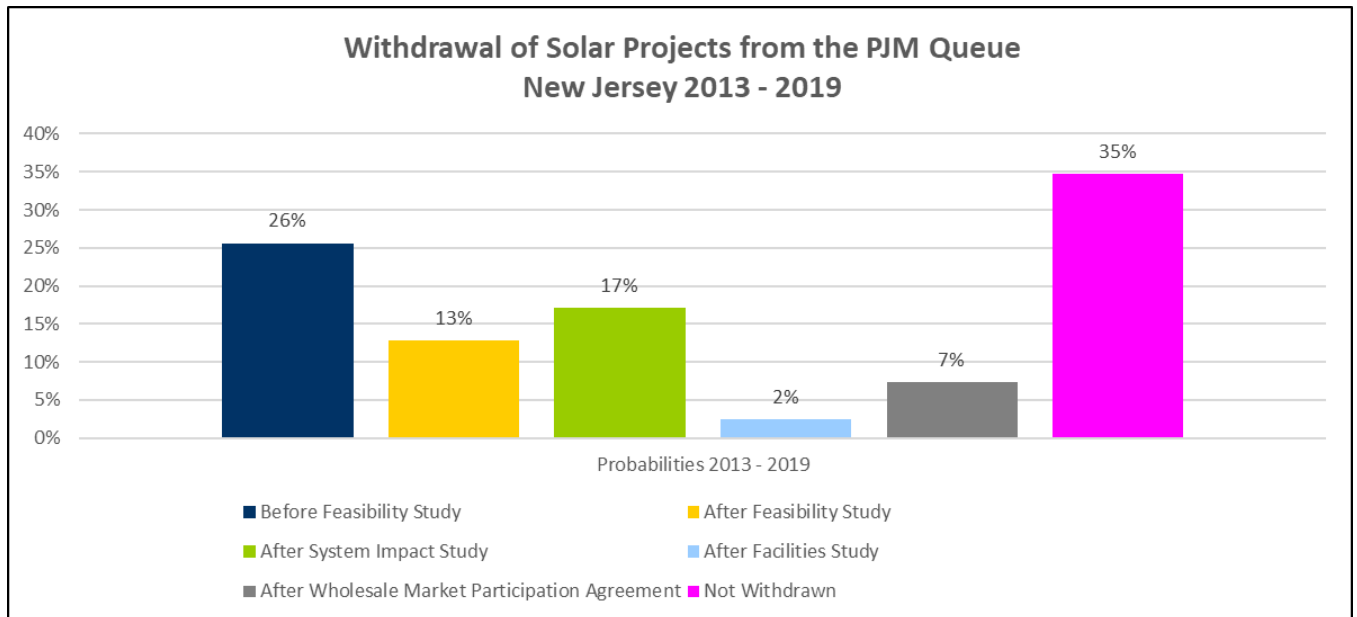


Figure 9. Withdrawal of Solar Projects from the PJM Queue

Queue costs

In order to proceed through the PJM queue, projects must pay for the costs of the required studies. For smaller projects (20 MW and below), the most significant potential cost is a \$50,000 charge for the facilities study, if it is required. For larger projects, costs prior to the facilities study depend on project size, but are capped at \$410,000. The facilities study is at least \$100,000, or higher, depending on the complexity of the study. PJM is currently evaluating a proposal that may significantly increase these deposit amounts.

Queue timing

The timeline for the PJM queue process for larger projects is designed to be about 26 months.⁵⁹ For smaller projects, an abbreviated process that should take about a year is available, provided the project does not “cause transmission system violations” and only requires a single point of interconnection. In practice, for large projects, developers commented that completion of the process all the way to an Interconnection Service Agreement is a necessary part of the development process.

Recently, many of the delays in the process occur at the very beginning, as more than a year can go by between the deadline to register for a queue position and when the queue position becomes active.

⁵⁹ PJM, “Interconnection Process Overview,” 2020, p. 12, available at: <https://www.pjm.com/-/media/committees-groups/task-forces/iprtf/postings/interconnection-process-overview.ashx>.