New York Sun Program – Mid-Point Review

CASE 21-E-0629: In the Matter of the Advancement of Distributed Solar

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January 17, 2023

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Introduction

The New York State Department of Public Service (DPS) and New York State Energy Research and Development Authority (NYSERDA) submit this Mid-Point Review in accordance with the New York State Public Service Commission's (Commission) *Order Expanding NY-Sun Program* (10 GW Order) issued on April 14, 2022. Specifically, the 10 GW Order directs NYSERDA to file the Mid-Point Review and recommendations within 60 days of the first of the following occurrences: (1) the date when 50% of either the Upstate or Con Edison capacity allocations have been committed; or (2) December 31, 2025. On November 17, 2022, hereafter referred to as the "Mid-Point Review Trigger", 50% of the new Upstate MW Block capacity authorized by the 10 GW Order was submitted to the MW Block program. In addition to the Mid-Point Review, this filing also provides a general overview of the NY-Sun Program and market activity between the issuance of the 10 GW Order and the Mid-Point Review Trigger, hereafter referred to as the "review period", and makes related recommendations. In summary, NY-Sun continues to make rapid progress toward the 6 GW[1] by 2025 distributed solar mandate set by the Climate Leadership and Community Protection Act of 2019 (Climate Act), and the recommendations proposed herein will, among other things, help to maximize the offsetting effect of new federal tax policy to meet the goals set in the 10 GW Order.

Section 1: Background

On December 17, 2021, NYSERDA and DPS Staff filed the *New York's 10 GW Distributed Solar Roadmap: Policy Options for Continued Growth in Distributed Solar* (Solar Roadmap) in Case 21-E-0629.[2] The Solar Roadmap presented several general policy recommendations and explored different options for procurement, pricing structures, and incentives and cost recovery toward achieving the overall 70 by 30 Target established by the Climate Act.[3]

On April 14, 2022, the Commission issued the 10 GW Order adopting many of the recommendations from the Solar Roadmap.[4] In that, the Commission adopted the target of achieving 10 GW of distributed solar deployment in New York State by 2030. Further, the 10 GW Order adopted an expanded Solar Energy Equity Framework (SEEF) wherein 40% of the Incremental 4 GW distributed solar will be targeted toward low-to-moderate-income (LMI) residents, regulated affordable housing, and disadvantaged communities (DACs).[5] The Commission further required that developers pay prevailing wages for construction and installation of solar projects 1 MWac and larger to be eligible for NY-Sun incentives. To avoid impacting projects already under development, the Commission exempted projects which submitted an initial utility interconnection application prior to the 10 GW Order from the new programmatic prevailing wage requirement.

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[1] Unless otherwise noted, all capacity figures are measured in direct current (DC).

[2] Case 21-E-0629, In the Matter of the Advancement of Distributed Solar, New York's 10 GW Distributed Solar Roadmap: Policy Options for Continued Growth in Distributed Solar (filed December 17, 2021).

[3] Climate Leadership and Community Protection Act amended the Public Service Law by adding Section 66-p. The Public Service Law § 66-p (2)(a) requires that 70% of New York's electricity must come from renewable sources by 2030.

[4] Case 21-E-0629, In the Matter of the Advancement of Distributed Solar, Order Expanding NY-Sun Program (issued April 14, 2022).

[5] 10 GW Order at 41.

The 10 GW Order authorized an additional NY-Sun budget of $1.474 billion to fully fund the expanded NY-Sun program. The adopted additional NY-Sun budget was broken down as follows:

- $954 million for base project incentives and adders, consisting of
  - $545 million for Upstate region
  - $396 million for Con Edison territory
  - $14 million for the Landfill/Brownfield Adder, available to both regions;[6]
- $252 million for the SEEF;
- $239 million to assist the industry with the transition to prevailing wage requirements;
- $16 million for the Cost Recovery Fee (CRF);
- $12 million for Administration; and
- $1 million for Evaluation.[7]

As part of the NY-Sun program implementation, the Commission directed NYSERDA and DPS staff to file a Mid-Point Review with the Commission within 60 days of the Mid-Point Review Trigger, for stakeholder comment in accordance with the New York State Administrative Procedure Act. The 10 GW Order further directs NYSERDA to hold a technical conference to review the Mid-Point Review filing with stakeholders, which will be held on January 31, 2023, as a webinar.[8]

The Commission directed that the Mid-Point Review should address, at a minimum:

A. The types of projects being developed in response to the incentives offered (i.e., Community Distributed Generation (CDG) vs remote crediting vs. on-site projects);
B. Updated project cost estimates based on developer-reported data, utility-reported interconnection costs, and international cost trends in modules and other components;
C. Market or policy factors that may be driving changes in rate of uptake and/or costs, such as changes to state or federal policy. The Order called out the then-proposed Build Back Better Act (BBB) as a potential federal action that would impact market development;[9]
D. Whether any changes to the E Value, base incentives or adders are warranted, in response to the previous factors;[10]
E. The remaining levels of capacity in each of the Con Edison categories and whether it is necessary to make adjustments to the allocation of MWs across the three project sizes based on the market response to the incentive rates;[11] and whether the NY-Sun Prevailing Wage Adder incentive rate is appropriately sized. That is, if the $239 million budget is sufficient to support the transition, and if changes to the adder or its requirements are necessary including any effects associated with changes to federal or state policy such as the IRA.

[6] Incentive adders include the Community Adder and beneficial siting adders.
[7] 10 GW Order at pp. 52-53.
[8] https://nyserdany.webex.com/weblink/register/r957283ba72a3ba1cf11d9f8e22a6527b
[9] While the BBB was not passed into law, the subsequently enacted Inflation Reduction Act (IRA) of 2022 filled a similar role; and therefore, this Mid-Point Review examines the impact of the IRA on project development.
[10] 10 GW Order at pp. 52-53.
[11] 10 GW Order at 34.

Section 2: Summary of NY-Sun Activity During Review Period

This section provides a report regarding general activity in the NY-Sun program during the review period. Table describes the status of the full NY-Sun budget (i.e., all Clean Energy Fund [CEF] funds authorized by the PSC for the program to date) as of the Mid-Point Review Trigger. NYSERDA will file an updated annual expenditure and collections schedule as part of the regular CEF Cash Flow Analysis filing in March 2023.

Table 2 summarizes progress towards the MW Block capacity targets set in the 10 GW Order, but is limited to CEF-funded capacity. The balance of the 10 GW target will be met by projects that did not receive CEF funding, including projects serving New York Power Authority or Long Island Power Authority customers that receive RGGI-funded incentives, and projects not receiving any NYSERDA-administered incentives. As of October 31, 2022, the most recent date for which complete data is available, total statewide operating solar capacity from all sectors and funding sources was 4,294 MW.

Table 1: Status of NY-Sun Budget[12]

	Total Authorized Funding	**Total Committed/Expended as of MPR Trigger (11/17/2022)**	**Uncommitted Funding**
MWB Incentives and Adders	$2,485,201,000	$1,758,612,404	$726,588,596
Funds to Assist in Transitioning to Prevailing Wage	$238,725,000	$0	$238,725,000
Administration	$58,756,000	$20,461,568	$38,294,432
Implementation	$32,600,000	$18,395,189	$14,204,811
Customer Education	$6,500,000	$5,474,555	$1,025,445
Solar Energy Equity Framework	$399,764,000	$78,933,735	$320,830,265
Evaluation	$3,500,000	$2,008,117	$1,491,883
NY Cost Recovery Fee	$41,800,000	$7,574,596	$34,225,404
Total	**$3,266,846,000**	**$1,891,460,164**	**$1,375,385,571**

Table 2: Progress Towards NY-Sun MW Targets (Program Launch Through Mid-Point Review Trigger)

Region and Sector	**Total MW Block Capacity**	**Total MW Committed/Completed as of MPR Trigger (11/17/2022)**	**MW Committed during Review Period**	**Remaining Uncommitted MW**
Upstate Residential	527	431	51	96
Upstate Nonresidential	279	170	16	109
Upstate C/I	6,213	4,755	1,767	1,458

[12] Table includes all NY-Sun CEF funding but excludes funding from non-CEF/SBC funding sources, including Regional Greenhouse Gas Initiative (RGGI) and Virginia Electric and Power Co. (VEPCO).

Con Edison Residential	441	296	45	145
Con Edison Nonresidential	735	347	67	388
Total	8,195	5,999	1,946	2,196

Section 2.1: Major Market Sectors

Upstate Commercial/Industrial and Nonresidential

The 10 GW Order authorized an incremental 2,943 MW of Upstate Commercial/Industrial (C/I) MW Block capacity. To date, NYSERDA has released a total of 1,850 MW of capacity across four blocks.[13] Uptake of the new Upstate C/I incentive capacity by eligible projects has been rapid, including by projects that reached the program's eligibility threshold during the approximately one-year period prior to the 10 GW Order when Upstate C/I incentives were unavailable.

The incentive rate for the current Upstate C/I block, Block 21, was set significantly lower than previous blocks to reflect benefits associated with the IRA. Prior to the passage of the IRA, a federal Income Tax Credit (ITC) of 26% was available for projects that commenced construction in 2022. The ITC was scheduled to step down to 22% for projects commencing construction in 2023, and 10% for projects commencing construction in later years. The IRA extends the ITC at the 30% level and allows inclusion of interconnection costs in a project's ITC-eligible basis.[14]

The 10 GW Order did not add new Upstate Nonresidential (projects under 750 kW) incentive capacity to the NY-Sun program. During the review period, 16.1 MW of NY-Sun incentive capacity was committed in this market segment.

Con Edison Nonresidential

The 10 GW Order authorized an additional 300 MW of Nonresidential MW Block capacity in the Con Edison region, to be divided into three project size categories: projects greater than 1 MW, projects between 200 kW and 1 MW, and projects smaller than 200 kW. The 10 GW Order specified the initial block sizes and incentive rates, and specified that there would be at least 300 MW of total new Con Edison Nonresidential capacity included in the NY-Sun incentive program. During the review period, 52.1 MW of Con Edison Nonresidential applications were submitted, split evenly between the three size categories.[15]

[13] MW Block capacity is tracked in real time on the NY-Sun Dashboard: https://www.nyserda.ny.gov/All-Programs/NY-Sun/Contractors/Dashboards-and-incentives.

[14] NYSERDA's analysis estimates that an increase in a typical Upstate C/I project's ITC from 26% to 30% is equivalent to a cost reduction of approximately $0.07/Watt, and increasing the ITC from 22% to 30% is equivalent to a cost reduction of approximately $0.14/Watt.

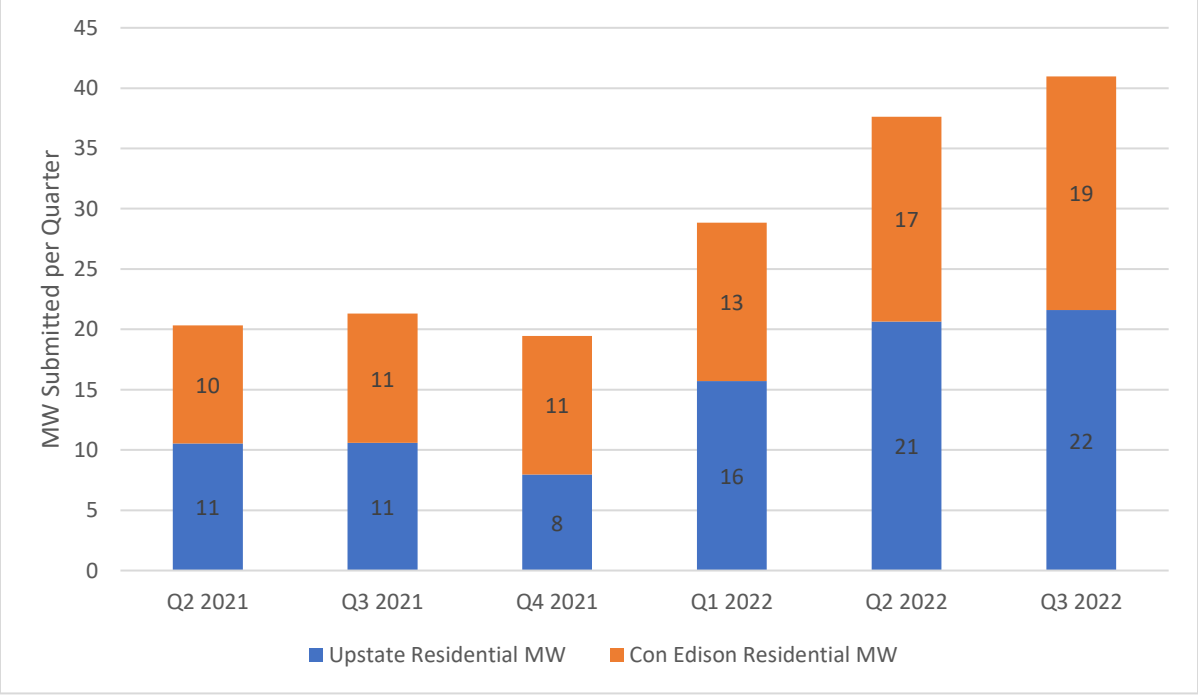
[15] MW Block capacity is tracked in real time on the NY-Sun Dashboard: https://www.nyserda.ny.gov/All-Programs/NY-Sun/Contractors/Dashboards-and-incentives.

Residential

The 10 GW Order authorized an incremental 150 MW of incentivized capacity for residential projects in the Con Edison territory, at a rate of $0.20/Watt. NYSERDA added this capacity to the Con Edison Residential MW block structure, and, as of the Mid-Point Review Trigger, approximately 145 MW of total Con Edison Residential MW block capacity remains uncommitted. While the 10 GW Order did not authorize additional capacity for upstate residential projects, approximately 96 MW out of a total of 527 MW of residential block capacity authorized by the 6 GW Order issued in May 2020[16] remains uncommitted as of the date of the Trigger.

Uptake by residential customers has been robust during the review period, with approximately double the capacity submitted compared to the same period in the previous year. This growth, after the implementation of the Customer Benefits Charge (CBC), can likely be attributed to rising retail electric rates for residential customers. Table 3 compares residential NY-Sun incentive uptake during the last six quarters to illustrate residential market trends.

Table 3: Residential Capacity Submitted to NY-Sun



Section 2.2: NY-Sun Incentive Adders

Prevailing Wage Adder

At the time of the Mid-Point Review Trigger, NYSERDA has received no project applications qualifying for the prevailing wage incentive adder. To be eligible for the adder, projects must be greater than 1 MWac and have submitted their initial utility interconnection application after the date of the 10 GW Order. All projects submitted to the NY-Sun C/I Blocks during the review period had their initial utility

[16] Case 19-E-0735, Additional NY-Sun Program Funding and Extension of Program Through 2025, Order Extending and Expanding Distributed Solar Incentives (issued May 14, 2020) (6 GW Order).

interconnection applications submitted prior to the date of the 10 GW Order. A more detailed discussion of the prevailing wage adder is included in Section 3.6 of this document.

Community Adder

The Community Adder provides an additional incentive to community solar projects that did not receive a utility-administered Market Transition Credit or Community Credit. The Community Adder saw significant uptake in both the Upstate and Con Edison markets. Over 96% of Upstate C/I capacity and 59% of Con Edison Nonresidential capacity that was submitted to NY-Sun during the review period was community solar.

The 10 GW Order authorized NYSERDA to provide an additional 2,060 MW of Upstate Community Adder, funded with $144 million. NYSERDA released an initial Community Adder block of 800 MW, later expanded to 1,150 MW, at an incentive rate of $0.07/Watt. This block was fully committed by October 3, 2022, at which point NYSERDA temporarily paused additional Upstate Community Adder commitments. Similarly, a total of 24.6 MW of Con Edison Community Adder was committed at a rate of $0.20/Watt before NYSERDA temporarily paused the Con Edison Community Adder on November 30, 2022.[17] The pausing of the Community Adder for both Upstate and Con Edison at this time will allow NYSERDA to align Community Adder rules and incentive rates with the provisions of the IRA, discussed in more detail in Section 3.3.

Con Edison Rooftop Canopy and Parking Canopy Adder

NY-Sun offers an incentive adder, currently set at $0.20/Watt, to projects in the Con Edison territory that are installed on either rooftop (capped at 25 kW per project) or parking canopies to increase siting opportunities in downstate New York. During the review period, eight projects totaling 7.0 MW received the Parking Canopy Adder, and 24 projects totaling 1.7 MW received the Rooftop Canopy Adder.[18]

Landfill/Brownfield Adder

NY-Sun offers an incentive adder of $0.15/Watt for projects sited on landfills or registered brownfield sites. This incentive adder encourages the development of solar on otherwise underutilized land as well as to reduce the amount of development on greenfield or agricultural sites. Since the introduction of the adder in 2018, over 190 MW of new distributed solar capacity has been sited on landfills or brownfields. Of this, a total of 13 projects totaling 65.6 MW received the adder during the review period.

It has become common practice for local municipalities to lease their landfills or brownfields for solar development, which creates a new revenue stream for municipalities. To support these efforts, the Solar

[17] Developers were given approximately one month notice before the Con Edison Community Adder was paused.
[18] 2% of Con Ed Nonresidential projects submitted during the review period used the Parking Canopy Adder, and 6% used the Rooftop Canopy Adder. Many projects included both conventional rooftop mounting and canopies; for such projects, the Canopy Adder was awarded on a prorated basis. Parking canopy projects tended to be larger, with an average size of 881 kW.

Procurement Toolkit, as a part of the New York State Solar Guidebook,[19] assists municipalities in leasing their underutilized lands.

Section 2.3: Solar Energy Equity Framework

The 6 GW Order authorized NYSERDA's proposal for the SEEF, an expansion of the NY-Sun activities focused on LMI customers, affordable housing, environmental justice communities, and disadvantaged communities, and dedicated $135 million exclusively for the SEEF, to be leveraged with no less than $65 million from other NY-Sun incentives for a total expenditure of no less than $200 million on eligible projects. The $135 million funding is in addition to the uncommitted portion of the original $13 million authorized by the 3 GW Order issued in April 2014[20] to increase solar access for LMI customers.

The 10 GW Order further expanded the SEEF as a means for NYSERDA to meet the Climate Act mandate that disadvantaged communities receive at least 35 percent, with the goal of 40 percent, of overall benefits of spending on clean energy. The 10 GW Order directed that no less than 1,600 MW (40% of the incremental 4,000 MW needed to reach the new 10,000 MW by 2030 target) be included in the SEEF, with an incremental budget increase of $251.8 million in dedicated funding authorized to meet this requirement. Progress on the different SEEF components is described below.

As of the Mid-Point Review Trigger, NYSERDA has committed or expended $78,933,735 in dedicated SEEF funds, leveraged by $125,083,147 in other NY-Sun incentives for a total of $204,016,882. NY-Sun is therefore on track to achieve the $200 million total expenditure requirement for projects completed by 2025 that was set in the 6 GW Order. However, it is premature to consider progress towards the expanded goal set in the 10 GW Order. As described below, two of the major SEEF program components, the Inclusive Community Solar Adder and Expanded Solar for All, are being revised to align with the federal IRA, and have not yet been made available to projects that have received NY-Sun incentive awards since the 10 GW Order was issued. When the program revisions are complete, SEEF funding will be made available to all projects (including those that have already received other NY-Sun incentive awards) that meet the program requirements.

<u>Inclusive Community Solar Adder</u>

The ICSA supports community solar projects serving LMI subscribers, affordable housing, and other facilities serving DACs. The goal of the ICSA is to increase access to community solar and resulting electric bill savings for LMI households, and to reduce operating costs for affordable housing and nonprofit entities serving DACs. To be eligible for an ICSA award, community solar projects must demonstrate that no less than a minimum percentage (20% in the program's first round, and 40% proposed for the second round) of the project's capacity be dedicated to eligible subscribers, that eligible subscribers will receive at least a 10% discount on community solar credits, and that additional criteria are met for subscription terms and marketing approaches. Payment of the ICSA is based on a project's actual performance in serving eligible subscribers, with higher payments for projects that successfully allocate a higher percentage of project capacity to eligible subscribers.

[19]https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources/Solar-Guidebook

[20] Case 03-E-0188, Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard. Order Authorizing Funding and Implementation of the Solar Photovoltaic MW Block Programs (Issued and Effective April 24, 2014) (3 GW Order).

The first round of the ICSA was launched in June 2021, with applications accepted between July 2021 and March 2022. During the first round of the ICSA, NYSERDA committed $46.4 million in awards to 119 projects, totaling 333.7 MW of dedicated capacity. These projects commit to serve an estimated 33,720 customers, including LMI households, affordable housing residents, and non-profit and public facilities in disadvantaged communities. At present, NYSERDA is preparing to relaunch the ICSA with adjustments based on program experience, the results of the stakeholder process described below, and the potential impact of the IRA.

On August 3, 2022, NYSERDA released the Proposed ICSA Round 2 Program Design for stakeholder comments. NYSERDA shared a draft of the proposed program rules, outlined the changes between Round 1 and Round 2, provided justification for proposed changes, and presented stakeholders with specific questions as a prompt for feedback. On August 8, 2022, NYSERDA hosted a stakeholder webinar and Q&A session about the Proposed Round 2 Design with 174 individuals representing 101 different companies, state and local government agencies, local and national environmental organizations, environmental justice organizations, and other entities. After the passage of the IRA, NYSERDA extended the stakeholder engagement period and updated the proposal documents to include a request for stakeholder feedback specific to the IRA's impact on the ICSA. NYSERDA received responses from 31 organizations representing a range of market and policy actors.

As next steps, NYSERDA intends to release a revised proposal for the ICSA program design that incorporates this feedback and provides specific incentive rates, present details on a stakeholder webinar, and accept additional stakeholder feedback before finalizing the program design and re-opening the program to applications.

NYSERDA acknowledges that stakeholders almost uniformly recommended that NYSERDA take these next steps immediately, prior to the release of further federal guidance on the IRA. However, as discussed in more detail in Section 3.3, NYSERDA and DPS have determined that an understanding of the requirements and procedures for the allocation of bonus tax credits is needed before ICSA rules and incentive rates and design can be finalized. While the delay is not ideal, NYSERDA is confident that it will result in the best possible program design from the perspective of customers, developers and ratepayers.

Expanded Solar For All

Expanded Solar For All (E-SFA) is a joint initiative between NYSERDA and National Grid to provide community solar and associated guaranteed bill savings to customers participating in National Grid's Energy Affordability Program (EAP) on an opt-out basis. The first round of E-SFA solicited proposals on a competitive basis, and on October 17, 2022, NYSERDA and National Grid announced awards to 21 projects totaling 121.4 MW.[21] NYSERDA issued a total of $15.5 million in E-SFA awards to these projects, and plans a second procurement round in 2023 to procure up to the 300 MW approved by the Commission.[22]

[21] NYSERDA, *NYSERDA and National Grid Announce Round One Results of Community Solar Program Offering for Underserved New Yorker*, October 17, 2022. See: https://www.nyserda.ny.gov/About/Newsroom/2022-Announcements/2022-10-17-NYSERDA-and-National-Grid-Announce-Round-1-Results

[22] Case 19-E-0735, Additional NY-Sun Program Funding and Extension of Program Through 2025, Order Approving Expanded Solar for All Program with Modifications (Issued and Effective January 20, 2022).

Multifamily Affordable Housing Incentive

The Multifamily Affordable Housing Incentive (MAHI) provides an increased NY-Sun incentive to projects located at regulated affordable housing properties. During the review period, 73 projects totaling 4.5 MW have applied for the MAHI. Participation in the MAHI has been focused heavily in the Con Edison territory, where much of the state's affordable housing is located. The MAHI is made available to eligible projects in Long Island using RGGI funds.

As part of the Mid-Point Review, and as directed by the 10 GW Order, NYSERDA has considered "appropriate adjustments to program rules and processes that may be warranted over time in response to market conditions". Specifically, NYSERDA has reviewed the criteria set forth in the NY-Sun Program Manual for a higher incentive level, set at $2.00/Watt in the 10 GW Order, for community solar projects sited on eligible affordable housing. In future updates to the Program Manual, NYSERDA intends to update these criteria to require that the project's full generation be credited to customers that meet the ICSA subscriber eligibility requirements. For clarity, a community solar project sited on an eligible affordable housing property that credits all generation to the property's building meter and/or resident meters would meet these requirements, as would other potential project models.

Affordable Solar Residential Incentive

Affordable Solar Residential Incentive (ASRI) provides an increased incentive for residential projects for low-to-moderate income homeowners. During the review period, 289 projects applied for the Affordable Solar incentive adder, totaling 2.8 MW.

Affordable Solar and Storage Predevelopment Technical Assistance Program

The Affordable Solar and Storage Predevelopment Technical Assistance Program (Predevelopment Program) provides early-stage technical assistance to owners and managers of affordable housing, municipalities, and community-based organizations seeking to develop solar and/or storage projects. As of November 2022, 42 applicants have received awards totaling $6.2 million from the Predevelopment Program, which have supported solar installations across the Con Edison, Upstate, and Long Island Regions.

Section 3: Commission-Directed Mid-Point Review Items

Section 3.1: Project Configurations

The Upstate C/I and Con Edison Nonresidential projects submitted to NY-Sun during the review period were a mix of community solar, remote crediting, and behind-the-meter projects located at a customer's site. The following tables display the MW capacity and quantity of projects by metering configuration.

Table 4: Upstate C/I Projects Submitted During Review Period, by Metering Configuration

Project Type	Total MW	Count of Projects	Average Project Size in MW
Community Solar	1,387.0	237	5.9
Remote Crediting	45.4	9	5.0
On-Site	4.1	2	2.1
Total	**1,436.6**	**248**	**5.8**

Table 5: Con Edison Nonresidential Projects Submitted During Review Period, by Metering Configuration

Project Type	Total MW	Count of Projects	Average Project Size in kW
Community Solar	30.6	81	378
Remote Crediting	5.7	97	59
On-Site	15.8	167	94
Total	**52.1**	**345**	**151**

As shown above, community solar was the dominant configuration Upstate, with more variety in the Con Edison service territory. Almost half of the Con Edison Nonresidential projects receiving NY-Sun incentive commitments during the review period were behind-the-meter installations at the customer's site, but because such projects were generally roof-mounted and limited by the available roof space, the average project size was only 94 kW.

The sustained interest in community solar development in both the Upstate and Con Edison regions underscores the importance of an effective CDG billing and crediting system. NYSERDA recognizes the ongoing work of DPS, the utilities, industry stakeholders, and the CDG Billing and Crediting working group, and supports continued efforts to ensure that ongoing billing and crediting problems are resolved. Effective CDG billing and crediting remains a major concern and potential barrier for the continued success of the State's nation-leading community solar market.[23]

Section 3.2: Project Cost Analysis

Since the filing of the Solar Roadmap in December 2021, the distributed solar market has faced significant economic headwinds, such as increased equipment and labor costs, as well as new opportunities from the IRA and increased Value Stack revenue from rising energy prices. NYSERDA's analysis, as discussed below, indicates that these factors generally offset one another in the Con Edison market, but project economics may see a net improvement in the Upstate market. However, it is also important to note that project economics remain dynamic and are significantly impacted by market trends such as rising interest rates.

Equipment Costs

Solar equipment costs have meaningfully risen in the past year. Increased global demand, international supply chain constraints, and economy-wide inflation have all exerted upward price pressure on solar modules, racking, and balance-of-system components.[24]

In March 2022, module shipments were disrupted due to a Department of Commerce Anti-Dumping and Circumvention (AD/CVD) trade case. Vietnamese, Cambodian, Malaysian, and Thai module manufacturers faced potential American import tariffs of an unknown magnitude, which led them to largely suspend shipments to the US. As these four countries collectively supply 80% of American

[23] Discussed in the technical conference held November 9, 2022. Case 19-M-0463, In the Matter of Consolidated Billing for Distributed Energy Resources, Order Establishing Process Regarding Community Distributed Generation Billing (issued on October 17, 2022).

[24] Solar Energy Industries Association and Wood Mackenzie Power & Renewables, U.S. Solar Market Insight - Q3 2022, September 8, 2022.

module imports,[25] the trade case resulted in higher prices and unmet demand for modules. On December 2, 2022, the Department of Commerce provided an initial ruling, stating four out of eight companies investigated were found to be circumventing U.S. duties by doing minor processing in one of the Southeast Asian countries before shipping to the United States and four were compliant with the tariff.[26] A final DOC ruling is expected by May 1, 2023. In June 2022, the Biden administration issued an Executive Order[27] announcing a 24-month exemption on new solar tariffs for the four countries, effectively forestalling potential duties from the DOC trade case, and module exports from the named countries have gradually resumed, although prices remain high.

Based on program data, feedback from market participants, and market research conducted by national firms and agencies,[28] NYSERDA staff estimate that, during the review period, overall costs for Upstate C/I projects trended upward by approximately $0.20-$0.30/Watt, and between $0.30-$0.70/Watt for Nonresidential projects in the Con Edison service territory. Based on feedback from market participants, cost increases downstate may be due to an especially tight downstate labor market and increased roof lease costs in New York City.[29] The price per Watt of residential projects submitted to NY-Sun increased by $0.28/Watt from 2021 to 2022, and rising interest rates may have a significant impact on the residential market in 2023.

Balance of System Costs

Non-module component costs, including for copper, steel, and electric switchgear, have been unpredictable due to persistent COVID-related supply chain issues. In addition to pricing concerns, many components are difficult to source, with long lead times. Developers report that utilities are also facing longer lead times on transformers and switchgear, which increases a project's interconnection timeframe and delays project revenue. These balance-of-system costs may have peaked, and Wood-Mackenzie projects declining costs in 2023 as supply chains further unknot.[30]

Feedback from project developers and other market participants indicates that labor costs have increased markedly over the past year. Increased solar deployment is increasing demand for experienced solar installers, especially electricians, and economy-wide inflation is driving workers to seek higher wages. Downstate solar installers report that labor costs are especially high in the Con Edison territory, and that availability of qualified installers is limited.

[25] SEIA Response to Anonymous AD/CVD Petitioners, https://www.seia.org/research-resources/seia-response-anonymous-adcvd-petitioners.
[26] US Department of Commerce: https://www.commerce.gov/news/press-releases/2022/12/department-commerce-issues-preliminary-determination-circumvention.
[27] The White House, *Declaration of Emergency and Authorization for Temporary Extensions of Time and Duty-Free Importation of Solar Cells and Modules from Southeast Asia,* June 2022.
[28] Including NREL's Fall 2022 Solar Industry Update: https://www.nrel.gov/docs/fy23osti/84515.pdf and Wood-Mackenzie's Q3 2022 Solar Market Insight Report. https://www.woodmac.com/reports/power-markets-us-solar-market-insight-q3-2022-150062226/.
[29] It is a relatively common practice for solar developers to sign long-term roof leases with building owners, and site community solar projects on the leased roofs. Several Con Edison PV developers have noted that real estate owners perceive that the IRA and Local Law 97 will increase demand for solar-compatible roofs, and are increasing their costs.
[30] Wood Mackenzie, *US solar PV System Pricing: H2 2022*, November, 21 2022.

Utility Interconnection Costs

Project interconnection continues to be a major cost driver for distributed solar development. Table 6 describes the average interconnection costs for projects >750 kWac since 2015, based on the date on which a project made its 75% utility upgrade payment. Average interconnection costs of these projects appear to be stable in recent years. However, this analysis only includes projects that have elected to move forward with paying upgrade costs after receiving an interconnection cost study, but does not include data for cancelled projects. Developers have reported that identifying sites suitable for interconnection has become progressively more difficult over time, increasing predevelopment costs that are not reflected in the interconnection queue data. Currently, clear data on the sites and capacity still available for cost-effective interconnection (also referred to as interconnection "headroom") is lacking, making it difficult for NYSERDA or other market participants to estimate future cost trends.

Table 6: Average C/I Interconnection Costs

Year	Average Project Size (MWac)	Total Project Capacity (MWac)	Total Cost ($ millions)	Total Cost ($/Wac)
2015	1.7	10.0	1.4	$0.136
2016	1.8	38.9	7.5	$0.193
2017	1.9	167.5	24.8	$0.148
2018	2.5	216.7	43.6	$0.201
2019	3.8	284.3	29.8	$0.105
2020	4.0	952.5	118.7	$0.125
2021	4.0	963.2	123.5	$0.128
2022 (through Sept)	4.2	759.6	89.4	$0.118

Energy Pricing and Value Stack Revenue

Wholesale energy prices were significantly higher in 2022 than in the previous year. War in Eastern Europe restricted global natural gas supplies, while demand for energy continued to rebound following a multi-year COVID-induced slump. For many months in 2022, New York's statewide wholesale energy prices were more than double the 2021 prices.[31]

Net metered solar projects experience more attractive economics and shorter payback windows when energy pricing is high, since energy supply is a component in retail electric rates. The high pricing of 2022 contributed to a growth in the net metered residential solar market. Likewise, Value Stack solar projects receive an Energy component, which is based on the NYISO's zonal day-ahead hourly Locational Based Marginal Price (LBMP). Higher LBMPs translate to richer Value Stack revenues for operational projects. Of note, since the energy and capacity elements of the Value Stack are tied to nominal NYISO pricing, they have not been undermined by inflation. However, the Environmental Value (E Value) and the Demand Reduction Value (DRV) in the Value Stack are fixed at a nominal monetary value, meaning the real value of these components have been slightly degraded due to inflation.

The high energy prices of 2022 are also causing energy forecasters and analysts to revisit their projections of future prices. Companies including Wood-Mackenzie and IHS have revised their long-term

[31] NYISO Energy Market & Operational Data. See: https://www.nyiso.com/energy-market-operational-data.

energy price forecasts upwards, and project developers and financiers have adjusted project's expected returns accordingly.[32,33]

Financing. Many developers have informed NYSERDA that project financing costs have increased since the filing of the Solar Roadmap. The Federal Reserve has increased its prime rate seven times during 2022 for a total of 4 percentage points,[34] and while the federal funds rate does not correlate to the weighted average cost of capital (WACC) for distributed solar projects on a 1-to-1 basis, it is indicative of the increased cost of borrowing funds.

Rising interest rates are also impacting the residential market. Many third-party ownership companies have increased their pricing in 2022, and customer loans frequently have higher interest rates or dealership fees.[35]

The IRA's direct-pay provision and the assignability of the ITC are anticipated to help drive down the cost of capital in certain types of solar development. The Treasury Department is expected to issue guidance on these provisions after February 2023. Once guidance is issued, it will take time for "first mover" projects to trailblaze these provisions and provide use cases for other projects.

Section 3.3: Inflation Reduction Act Impacts

The 10 GW Order specified that the Mid-Point Review should consider market or policy factors that are driving changes in rate of solar development and project development costs. Further, the 10 GW Order directed NYSERDA to analyze "other changes to state or federal policy" as part of the Mid-Point Review.

Subsequent to the Commission's issuance of the 10 GW Order, on August 16, 2022, the IRA was signed into law,[36] with significant implications for the distributed PV market. The Mid-Point Review includes an assessment of the potential impact of the IRA on the NY-Sun program. Among other aspects, the IRA promotes investment in cleaner domestic energy production and the commitment to reducing carbon emissions by roughly 40 percent by 2030. The IRA includes many provisions related to clean energy tax incentives, including several newly introduced provisions.

On October 5, 2022, the US Department of the Treasury issued six notices requesting public comment on clean energy tax incentives and climate related issues in the IRA.[37] NYSERDA provided comments on November 4, 2022, in response to the following four of the notices: Notice 2022-47 requested comments on energy security tax credits for manufacturing,[38] Notice 2022-48 requested comments on

[32] Wood Mackenzie Energy Markets Outlooks Reports, https://www.woodmac.com/store/outlook/oil-and-natural-gas-outlook/energy-markets/.
[33] https://www.spglobal.com/marketintelligence/en/mi/products/us-power-market-forecasts-data-lake.html
[34] Forbes, Federal Funds Rate History 1990 to 2022. See: https://www.forbes.com/advisor/investing/fed-funds-rate-history/
[35] Wood Mackenzie Power and Renewables, US residential solar finance update H2 2022.
[36] H.R. 5376 - 117th Congress (2021-2022): Inflation Reduction Act of 2022 | Congress.gov | Library of Congress.
[37] Treasury Seeks Public Input on Implementing the Inflation Reduction Act's Clean Energy Tax Incentives. October 5, 2022. See: https://home.treasury.gov/news/press-releases/jy0993#:~:text=U.S.%20Department%20of%20the%20Treasury,-Search&text=%E2%80%9CThe%20Inflation%20Reduction%20Act%20tackles,Yellen
[38] https://www.irs.gov/pub/irs-drop/n-22-47.pdf

incentive provisions for improving the energy efficiency of residential and commercial buildings,[39] Notice 2022-49 requested comments on certain energy generation incentives,[40] and Notice 2022-51 requested comments on prevailing wage, apprenticeship, domestic content, and energy communities' requirements.[41,42] With the public comments in hand, it is anticipated that the Treasury and IRS will issue clarifying guidance on these provisions. Such guidance will be provided in the weeks and months ahead. Initial guidance on the IRA's prevailing wage and apprenticeship requirements was published on November 30, 2022.[43]

One of the major provisions in the IRA that affects the NY-Sun program is the extension of the ITC available to those installing solar systems. Prior to the IRA, the ITC was scheduled to step down, as described in Table 7.

Table 7: Scheduled ITC Step-down Prior to and Under the IRA[44]

	2022	2023	2024-2032	2033	2034	2035 onwards
Pre-IRA ITC Schedule	26%	22%	10% Commercial, 0% Residential	10% Commercial, 0% Residential	10% Commercial, 0% Residential	10% Commercial, 0% Residential
IRA ITC Schedule	30%	30%	30%	26%	22%	0%

Analysis conducted for the 10 GW Solar target relied on ITC assumptions prior to the IRA's extension of the ITC. The IRA extends the availability of ITC to PV systems with a maximum credit of 30% for solar systems installed between 2022[45] and 2032, and will decrease to 26% for systems installed in 2033 and further to 22% in 2034. Importantly, projects greater than 1 MW that fail to meet new federal prevailing wage and apprenticeship requirements will receive a less valuable credit of only 6%. The IRA and subsequent guidance established a transition period where projects that "commence construction" within 60 days of the release of formal guidance from the IRS and Department of Treasury (that is, by January 29, 2023) will be deemed in compliance with the IRA's requirements to receive the ITC of 30% without paying prevailing wage. Section 3.6 of this Mid-Point Review summarizes the potential impact of these changes and recommends adjustments to the relevant 10 GW Order directive.

Residential projects, and commercial projects under 1 MW, are not required to pay prevailing wage. The ITC extension will bolster residential PV deployment in all regions of the state, especially if stubbornly high project costs decline in coming years.

[39] https://www.irs.gov/pub/irs-drop/n-22-48.pdf
[40] https://www.irs.gov/pub/irs-drop/n-22-49.pdf
[41] https://www.irs.gov/pub/irs-drop/n-22-51.pdf
[42] Comments from The New York State Energy Research and Development Authority on Notice 2022-47, Notice 2022-48, Notice 2022-49, and Notice 2022-51 issued by the U.S. Department of Treasury and Internal Revenue Service. November 4, 2022.
[43] https://www.govinfo.gov/content/pkg/FR-2022-11-30/pdf/2022-26108.pdf
[44] ITC is shown based on year projects commence construction, based on the assumption that projects meet federal prevailing wage requirements.
[45] The increase in the ITC from 26% to 30% applies retroactively only for those systems installed in 2022.

Under the IRA, tax credit recipients can monetize the ITC in two alternative methods in addition to traditional tax equity investment structures. The first provision allows certain entities to take a direct pay option.[46] The direct pay option will become available in 2023 and allows tax-exempt organizations, rural cooperatives, and state and political subdivisions to receive a direct payment equal to the amount of the ITC. Previously, such organizations have typically needed to enter a power purchase agreement with a private company to make use of the ITC or other tax benefits. NYSERDA anticipates the direct pay provision will spur development of state- and municipal-owned PV development. The second method to monetize the credit allows entities to transfer or sell all or a portion of their tax credits to unrelated taxpayers, which could potentially reduce a project's overall cost of capital by reducing the need for tax equity partnerships.[47] While these two methods of monetization will eventually lead to new project financing options, it is premature to draw conclusions about the magnitude of their impact on the New York market until the Treasury and IRS release additional guidance.

The IRA also provides incremental tax credits for projects that satisfy certain criteria. For example, projects can qualify for a 10% increase to the ITC if they satisfy the new "domestic content" requirement. This requirement is met if both 100% of any steel or iron used in the project was produced in the United States and 40% of manufactured products that are components of the facility were produced in the United States.[48] The IRA also introduces a 10% increase to the ITC for projects that are located in an "energy community."[49]

Solar projects with a capacity less than 5 MWac, such as those participating in the NY-Sun program, may also seek an allocation of bonus ITC if they are placed in service in connection with low-income communities. Specifically, projects located in low-income communities or on Indian land may be eligible for a 10% bonus credit, and low-income benefit projects and low-income residential building projects may be eligible for a 20% bonus credit. Total annual allocation of such credits is limited to 1,800 MW nationwide.[50] The IRA requires the Treasury Department and IRS to release guidance on the allocation process no later than 180 days following the enactment of the IRA. The guidance is therefore expected by February 2023. While commercially owned projects installed on residences (i.e., residential leases and power purchase agreements) may be eligible for bonus ITC allocations, residential projects purchased by homeowners (i.e., cash purchase and/or consumer loan) are not. NYSERDA anticipates a significant portion of both pipeline and new projects may seek a bonus ITC allocation, and that there will likely be a significant overlap with projects that qualify for NY-Sun SEEF adders.

Given the wide latitude the IRA provides to the Treasury Department and IRS to establish specific guidance and processes for allocating the bonus credits in connection with low-income communities,

[46] IRA Section 6417
[47] IRA Section 6418
[48] To meet this requirement, at least 40% of total costs associated with manufactured products must be attributable to manufactured products mined, produced, or manufactured in the US.
[49] Per IRA Section 45(b)(11)(B)), energy communities include those located at one of the following: (i) brownfield sites, (ii) communities that (A) at any time after 2009 had employment or tax revenues in excess of certain thresholds that are attributable to the extraction, processing, transport or storage of coal, oil or natural gas industries and (B) had an unemployment rate at or above the national unemployment rate for the prior year and (iii) communities located in census tracts in which (or census tracts adjoining census tracts in which) a coal mine has been closed after 1999 or a coal-fired electric generating unit has been retired.
[50] IRA Sections 48(e) and 48E(h).

NYSERDA finds that quantifying the impact of the IRA, and adjusting NY-Sun program design elements accordingly cannot be accomplished prior to the publication of the federal guidance. After the release of the federal guidance, NYSERDA will review and update program rules and incentive rates for the SEEF adders. This will be done with the intention of maximizing the benefits of the IRA to New Yorkers, and especially DACs, in a way that is cost-effective for ratepayers.

The flexible structure of the NY-Sun program, established in the April 2014 NY-Sun Order and subsequently reinforced, allows NYSERDA to adjust incentive rates and design in response to market, regulatory and policy changes, and will allow NYSERDA to make IRA related adjustments in consultation with DPS and program stakeholders. However, for avoidance of doubt, NYSERDA requests Commission authorization to adjust the specific incentive rates set in the 10 GW Order (e.g., the Con Edison ICSA and Community Adder), which may include different or adjusted incentive rates for projects that receive bonus tax credits.

Section 3.4: Potential Changes to Value Stack

The Solar Roadmap included extensive analysis and discussion on whether adjustments should be made to the Value Stack E Value. While there were arguments for an enhanced or indexed E Value in supporting project economics, the Solar Roadmap and the resulting 10 GW Order highlighted difficulties and inefficiencies in that approach. DPS and NYSERDA concluded in the Solar Roadmap, and reiterate here, that a NYSERDA-administered incentive program allows greater flexibility and adaptivity than an adjusted E Value, while protecting ratepayer dollars. DPS and NYSERDA therefore recommend that no changes to the E Value or other Value Stack elements be made as part of the Mid-Point Review.

Section 3.5: Allocation of Con Edison Nonresidential Capacity

As of the Mid-Point Review Trigger, there has been steady uptake in the Con Edison Nonresidential Blocks. Of the 300 MW of incremental capacity added to the Con Edison Nonresidential MW Block program, 52 MW have been allocated at the time of the Mid-Point Review Trigger, with approximately one third of that capacity falling into each of the three size categories established in the 10 GW Order. This pace is consistent with the typical multi-year development cycle for downstate solar projects. NYSERDA does not recommend changes to the Con Edison capacity allocations at this time.

Section 3.6: Prevailing Wage

In its 10 GW Order, the Commission established prevailing wage requirements for distributed solar projects over 1 MWac in size applying for the NY-Sun incentive. The Commission stated that, as a general policy, the transition to a green economy should be accompanied by the creation of well-paying jobs. The 10 GW Order approved a "Prevailing Wage Adder" incentive to be offered as part of the NY-Sun program to projects that are required to meet the prevailing wage requirements, with a total budget of $239 million. The 10 GW Order noted that further action could be taken as part of the Mid-Point Review "if it is determined that the $239 million budget for the Prevailing Wage Adder is insufficient to support the transition, or if modifications to the adder rate is warranted based on evolving impacts of prevailing wages on project development costs."

To allow a transition period, the 10 GW Order directed that projects that had submitted their initial utility interconnection application prior to the date of the 10 GW Order would not be subject to the prevailing wage requirements and are not eligible for the Prevailing Wage Adder. Interconnection queue

data published by the investor-owned utilities indicates that over 900 MW of projects submitted initial interconnection applications after the release of the December 17, 2021, Solar Roadmap but prior to the April 2022 10 GW Order and will not be eligible for the Prevailing Wage Adder.[51] As of the date of the Mid-Point Review Trigger, no applications subject to the prevailing wage requirements had been submitted to the NY-Sun program.

Initial Treasury Department guidance posted November 30, 2022, provides further details regarding the implementation of the federal prevailing wage requirement described in Section 3.3.[52] Projects that commence construction within 60 days of the release of the guidance (i.e., by January 29, 2023), will be eligible for the 30% ITC without needing to meet the IRA's prevailing wage and apprenticeship requirements. The Guidance clarifies that projects can *commence construction* by either (A) performing on-site or off-site work of a significant nature, or (B) incurring 5% of project costs ("safe harboring"). Developers have historically been able to safe harbor projects by purchasing modules, inverters, or other equipment. A significant portion of the projects that are currently in utility interconnection queues may meet the federal definition of "commence construction" by January 29, 2023, and will therefore not be required to pay federal prevailing wage.

NYSERDA's analysis shows that a typical Upstate C/I project (up to 7.5 MW) that fits the "commence construction" exemption and receives a 30% ITC without being subject to any prevailing wage requirements would need a NY-Sun base incentive level of approximately $0.05/Watt to achieve financial viability. On November 15, 2022, NYSERDA announced that Block 21 of the Upstate C/I MW Block Program would have an incentive rate of $0.05/Watt, down from the Block 20 incentive rate of $0.12/Watt. This adjustment will avoid over-incentivizing projects that receive a 30% ITC without incurring the additional expense of meeting prevailing wage requirements.

As noted in Section 3.3, the IRA established a reduced ITC of 6% for projects that do not meet the new federal prevailing wage requirements and do not meet the "commence construction" exemption described above. However, NYSERDA analysis shows that a 6% ITC rate is insufficient to enable project development, and as a result, NYSERDA believes that developers will implement federal prevailing wage requirements to secure the 30% ITC, where required.

The IRA therefore introduces a significant funding gap for a certain subset of projects that (A) do not meet or qualify for the "commence construction" exemption (i.e., will be required to meet IRA prevailing wage and apprenticeship requirements as a *de facto* necessity to receive a 30% ITC); and (B) are also not eligible for the NY-Sun Prevailing Wage Adder due to an initial interconnection application date prior to the 10 GW Order. To address this gap, and to generally promote well-paying solar jobs in support of the 10 GW goal, NYSERDA recommends a change in the eligibility for the Prevailing Wage Adder approved in the 10 GW Order. Specifically, NYSERDA recommends that all projects greater than 1 MWac in size that: (A) submit applications to Upstate C/I Block 21 or later, or to the second Con Edison Nonresidential >1 MW Block or later; (B) are not subject to the prevailing wage requirement as established by the 10 GW Order; and (C) are willing to (i) commit to pay New York State Prevailing Wage and (ii) substantiate as such via quarterly certifications by a New York State-licensed Certified Public Accountant during the project construction period, to be considered eligible for the Prevailing Wage

[51] SIR Inventory Information, posted at https://www3.dps.ny.gov/W/PSCWeb.nsf/All/286D2C179E9A5A8385257FBF003F1F7E

[52] https://www.govinfo.gov/content/pkg/FR-2022-11-30/pdf/2022-26108.pdf

Adder. For clarity, NYSERDA requests that, if adopted, this change be made retroactive to the projects submitted to Upstate C/I Block 21.

As directed in the 10 GW Order, as part of the Mid-Point Review NYSERDA has examined potential adjustments to the Prevailing Wage Adder rates and budget. The analysis underlying the Solar Roadmap determined that the Prevailing Wage Adder should be initially set at $0.125/Watt Upstate, and $0.20/Watt in the Con Edison territory. Since the Solar Roadmap filing in December 2021, labor costs have been pushed upwards by high demand and economy-wide inflation. Counterbalancing these factors, the Solar Roadmap analysis assumed that projects paying prevailing wages would receive a 10% ITC, but the IRA increased the ITC to 30% (or more, in certain cases) and labor costs are included in a project's ITC-eligible costs. As a result, NYSERDA does not find that an adjustment to the Prevailing Wage Adder rates is necessary at this time. Based on the utility interconnection queue data discussed above and volume of projects already submitted without the Prevailing Wage Adder, NYSERDA's analysis indicates that the requested changes to eligibility for the Prevailing Wage Adder can be made without any increase in the Prevailing Wage Adder budget established in the 10 GW Order.

Recognizing that labor costs are dynamic and that the sector is in a transition period, NYSERDA will continue to closely monitor the cost impact of the prevailing wage requirement. The Commission has previously granted NYSERDA, in consultation with DPS Staff, the flexibility to adjust NY-Sun incentives in response to market conditions, as articulated in the *Flexibility to Adapt to Market Conditions* section of the NY-Sun Operating Manual. NYSERDA further requests the Commission grant NYSERDA, in consultation with DPS Staff, the flexibility to adjust the Prevailing Wage Adder rates and budget in response to future significant market or policy changes, provided that the adjustments can be made without increase to the total program budget.

Section 3.7: Additional Items Reviewed

Production Adjustments to Incentive Payments

During the initial phases of the NY-Sun program, the Commission directed the NY-Sun incentive structure to encourage timely commercial operation of projects and measurable production during initial operation years of the project. NYSERDA currently adjusts incentive payments made to Upstate C/I projects on the first and second anniversary of project completion based on system production relative to an assumed statewide average. However, the solar market and regulatory context has evolved, and NYSERDA requests authorization to decouple these incentive payments from directly measured system production.

NYSERDA program data demonstrates that, during the two-year post-completion period, production varies primarily due to annual weather variations, non-emergency utility shutdowns, or other factors outside the control of project owners.[53] In contrast, the Commission-adopted Value Stack tariff accounts for production variation and provides project compensation based on actual performance over the entire life of the system. As a result of the Value Stack, project owners and financiers are highly motivated to maximize system production through effective monitoring and maintenance practices, and, increasingly, by using trackers and/or bifacial modules. Therefore, NYSERDA proposes that the incentive payments for the Upstate C/I program no longer be subject to adjustment based on system

[53] C/I project performance data is logged to NYSERDA's public-facing Distributed Energy Resources webpage, https://der.nyserda.ny.gov/data/performance/.

production during the first two years of system operation. NYSERDA further recommends that the current awardees be granted the option of adopting this change for future payments.

NYSERDA recognizes a preference in some developer business models for payments made over multiple years. NYSERDA therefore proposes that NY-Sun program rules be adjusted to allow project owners the option of receiving a single incentive payment upon project completion, or to receive incentive payments on the existing schedule (50% payment at commercial operation, 25% payment at the two subsequent anniversary dates) without adjustment for production level. For clarity, the option for a single payment would not apply to the ICSA. Projects receiving NY-Sun awards will continue to be required to share production data via the DER Integrated Data Portal[54] or through an alternative process that may be established by NYSERDA in the future.

Floating Photovoltaic Adder

Beginning in 2018, the NY-Sun program offered additional upfront incentives for projects that met specific policy goals, including balancing land-use pressure. The Solar Roadmap recommended the continuation of these "beneficial siting" adders and suggested consideration of expanding the solar deployment strategies eligible for such adders. In the 10 GW Order, the Commission directed NYSERDA and the DPS Staff to evaluate the potential for an "agrivoltaics"[55] adder and submit a proposal for Commission consideration, if such adder is deemed necessary and reasonable. As of the Mid-Point Trigger, NYSERDA continues to evaluate the "establishment of an agricultural program to offer support and incentives to projects that are designed to maximize agricultural and environmental co-benefits" in coordination with the Agricultural Technical Working Group (A-TWG) and the Mid-Point Review does not include a proposal for an agrivoltaics adder. In parallel with these activities, in the 2023 RGGI Operating Plan Amendment, NYSERDA proposed $5 million in RGGI funding to establish a new partnership between NYSERDA, the New York State Department of Agriculture and Markets, and higher education institutions to further promote agrivoltaics.[56] The investment of RGGI proceeds, when approved, will enable the development of guidance and education materials on the use of agrivoltaics in farming in New York State.

At this time NYSERDA proposes a standard-offer incentive adder for "floating photovoltaic" (FPV) projects. FPV offers a new siting opportunity for commercial-scale projects outside of greenfield or agricultural sites, as well as potential revenue and clean energy generation for municipalities. NYSERDA recommends that such projects, in a manner similar to projects sited on landfills and brownfields, be able to receive an incentive adder. NYSERDA requests the ability to set and adjust the FPV incentive adder in consultation with DPS Staff. While FPV has yet to be widely deployed at scale, it is a potential alternative to greenfield development and may be feasible on certain waterbodies in New York, particularly municipal reservoirs.[57] In 2020, there was approximately 2,600 MW of FPV installed

[54] https://der.nyserda.ny.gov/

[55] Agrivoltaics is the practice of siting clean energy generation technologies on agricultural lands to maximize value of the two complementary uses of the land.

[56] NYSERDA, *New York's Regional Greenhouse Gas Initiative Operating Plan Amendment for 2023*. https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Researcher-and-Policymakers/Regional-Greenhouse-Gas-Initiative/2023-RGGI-Op-Plan-Amendment-Draft.pdf.

[57] Floating Photovoltaic Systems: Assessing the Technical Potential of Photovoltaic Systems on Man-Made Water Bodies in the Continental United States https://www.osti.gov/pages/biblio/1489330; NREL, Vignesh Ramasamy

worldwide, but only 12 MW have been installed in the United States. A recently completed system in Sayreville, New Jersey demonstrates that the approach is viable in our region.[58]

NYSERDA's review of the potential for FPV to contribute to New York's policy goals has relied extensively on research conducted by the National Renewable Energy Laboratory (NREL) evaluating the technical potential, benefits, and costs of FPV.[59] NREL concludes that "FPV offers multiple benefits. It eliminates competition for land that could be used for other purposes, such as agriculture or urban development," and cites potential benefits such as increased module efficiency due to the water-cooling effect, reduced water evaporation, and reduced algal growth on reservoirs.

NREL has estimated that a 10 MW FPV system will have an installed cost $0.26/Watt higher than a comparable ground-mount system, largely due to the higher structural costs for floats and the anchoring system.[60] Because FPV presents potentially higher energy production and additional costs will be partially offset by the ITC, NYSERDA believe that an initial incentive adder of $0.15/Watt will be appropriate. Given the relatively modest total potential for FPV in New York, no overall increase to the NY-Sun adder budget is needed to incorporate this change. Additionally, because FPV adder can be implemented alongside the landfill and brownfield adders, no increase in administrative budget is anticipated at this time.

Net Crediting Rules Adjustment

As part of the Mid-Point Review process, NYSERDA explored a requirement that future Community Adder awards be contingent on projects also meeting the requirements of the Inclusive Community Solar Adder (ICSA) by including a minimum percentage of eligible LMI subscribers with a minimum 10% customer bill discount (i.e., a 10% net discount on the monetary value of CDG bill credits placed on the subscriber's electric bill). NYSERDA found that this requirement would help ensure the attainment of the SEEF targets set in the 10 GW Order, and that the community solar market has reached a level of maturity where such a requirement is feasible from a customer acquisition perspective. However, based on near-uniform feedback from stakeholders and NYSERDA's analysis of project economics, this requirement was ultimately deemed unfeasible. The current net crediting rules, established in the Order Regarding Consolidated Billing for Community Distributed Generation (Consolidated Billing Order), issued on December 12, 2019[61] only allow for a single customer bill discount (referred to as "Net

and Robert Margolis, *Floating Photovoltaic System Cost Benchmark: Q1 2021 Installations on Artificial Water Bodies*, October 2022.See: https://www.nrel.gov/docs/fy22osti/80695.pdf

[58] Ludt, Billy. "New Jersey town keeps its water clean with the country's largest floating solar system," Solar Power World. https://www.solarpowerworldonline.com/2020/01/new-jersey-town-keeps-its-water-clean-with-the-countrys-largest-floating-solar-system/.

[59] Floating Photovoltaic Systems: Assessing the Technical Potential of Photovoltaic Systems on Man-Made Water Bodies in the Continental United States https://www.osti.gov/pages/biblio/1489330; NREL, Vignesh Ramasamy and Robert Margolis, *Floating Photovoltaic System Cost Benchmark: Q1 2021 Installations on Artificial Water Bodies*, October 2022.See: https://www.nrel.gov/docs/fy22osti/80695.pdf

[60] Floating Photovoltaic System Cost Benchmark: Q1 2021 Installations on Artificial Water Bodies.

[61] Case 19-M-0463, In the Matter of Consolidated Billing for Distributed Energy Resources, Order Regarding Consolidated Billing for Community Distributed Generation (issued December 12, 2019).

Member Credit" in the context of net crediting) to be set for all non-demand subscribers in an individual community solar project, with a minimum allowable Net Member Credit of 5%.

In most instances project economics cannot support a 10% customer bill discount for customers (as opposed to the 5% minimum Net Member Credit) who are not eligible LMI subscribers under the rules of the ICSA. This in turn makes the ICSA a less accessible option for CDG providers utilizing net crediting who wish to include both LMI and non-LMI subscriber within a single project— a business model that is allowable under ICSA rules and would enable a wider range of projects and providers to contribute to the SEEF goals set in the 10 GW Order. NYSERDA therefore recommends that the Commission consider amending the rules set in the Consolidated Billing Order to allow multiple Net Member Credit rates within a single CDG project.[62] NYSERDA recognizes that such a change, though superficially simple, may require significant adjustments to utility CDG procedures and software. NYSERDA recommends that, if the Commission agrees that multiple Net Member Credit rates should be allowed within a single CDG project, the utilities and stakeholders should work collaboratively to design specific requirements and procedures, potentially via the CDG Billing & Crediting Working Group, prior to implementation.

Section 4: Summary of Recommendations

For the forgoing reasons, and based on this Mid-Point review, NYSERDA and DPS staff recommend the following:

(1) Provide NYSERDA flexibility to adjust the Con Edison Community Adder and ICSA incentive rates specified in the 10 GW Order, based on dynamic market and policy conditions, including the passage of the IRA and the anticipated federal guidance.
(2) Make no changes to the Value Stack at this time.
(3) Authorize a change in the eligibility for the Prevailing Wage Adder approved in the 10 GW Order whereby all projects greater than 1 MWac in size that submit applications to Upstate C/I Block 21 or later, or to the second Con Edison Nonresidential >1 MW Block or later that commit to pay prevailing wage and submit a quarterly certification by a Certified Public Accountant be eligible for the Prevailing Wage Adder. NYSERDA requests that, if adopted, this change should be made retroactive to the opening of Upstate C/I Block 21 on November 17, 2022. For clarity, this change would not impact the prevailing wage requirement based on interconnection application date that was established in the 10 GW Order.
(4) Provide authorization to expand the current offering of Beneficial Siting Adders for a Floating PV Adder.
(5) Authorize the removal of system production adjustments from the NY-Sun Commercial/Industrial incentive payment structure.
(6) Amend the rules set in the Consolidated Billing Order to allow multiple Net Member Credit rates within a single CDG project.

[62] A similar proposal was advanced in a March 29, 2022, DPS Staff straw proposal in the context of opt-out CDG projects for community choice aggregations. See Case 19-M-0463 et al., supra, Straw Proposal on Opt-Out Community Distributed Generation (filed March 29, 2022), pp. 12-13.