



“Refresh” of the Administratively Determined Incentive (ADI) Program

December 2, 2022 – 2 pm

Webinar Instruction Page

- All attendees will be automatically muted
- Questions? Please use the “Q &A” function in Zoom
- We will address clarifying questions at the end of each section
- Please note that the “Chat” function in Zoom is not available for this meeting, other than to broadcast the registered speakers “on deck”
- This meeting is being recorded. A copy of the recording and slides will be made available on the BPU website:
<https://www.nj.gov/bpu/newsroom/public/>

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Written Stakeholder Comment Guidelines

- The deadline for comments on the ADI Refresh is 5:00 p.m. ET on December 9, 2022
- Please submit comments directly to Docket No. **QO20020184** 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:

Acting Secretary of the Board
44 South Clinton Avenue, 1st Floor
Post Office Box 350
Trenton, NJ 08625-0350
Phone: 609-292-1599
Email: board.secretary@bpu.nj.gov

Agenda

| Time | Agenda Item |
|-------------------|--|
| 2:00 PM – 2:10 PM | Opening Remarks Review of the Day's Agenda |
| 2:10 PM – 2:30 PM | Presentation and Q&A: Approach <ul style="list-style-type: none">▪ ADI Market Segment Performance to Date▪ Overview of Incentive Modeling Approach▪ Overview of System Advisor Model (SAM) |
| 2:30 PM – 3:00 PM | Presentation and Q&A: Variable Adjustments <ul style="list-style-type: none">▪ Capex▪ Opex▪ Investment Tax Credit and Interest Rates |
| 3:00 – 4:00 | Stakeholder Comments & Questions |

Live Stakeholder Comments (this meeting)

- Speaking time per person is limited to 5 minutes—please be respectful of other speakers.
- The next five speakers are posted in the chat. We will call on speakers in order. If your name is not showing (only a phone number), please raise your hand when it is your turn to speak.
- Phone controls for participants
 - The following commands can be entered via DTMF tones using your phone's dial pad while in a Zoom meeting:
 - *6 - Toggle mute/unmute
 - *9 - [Raise hand](#)
- At the conclusion of our pre-registered speakers list, we will invite additional speakers to raise their hands to speak.

ADI Market Segment Performance to Date

Original ADI Capacity Blocks by Market Segment

| Market Segments | System Size | MW (dc) Capacity Blocks |
|---|---------------------------------|---|
| Net-Metered Residential | All Sizes | 150 MW |
| Net Metered Non-Residential | All sizes at or below 5 MW (dc) | 150 MW |
| Community Solar including LMI and Non-LMI | All sizes at or below 5 MW (dc) | 150 MW |
| Interim Subsection (t) Grid | All Sizes | 75 MW or approximately 3 months from the CSI Program's first solicitation, whichever occurs first |

^ Established by Order dated July 28, 2021

Energy Year 2022 ADI Program Subscription by Market Segment

| Market Segment | Capacity Block (dc) | Capacity Subscribed (dc) | Capacity Available (dc) |
|-----------------------------------|---------------------|--------------------------|-------------------------|
| Net Metered Residential | 150,000 kW | 123,903 kW | 26,097 kW |
| Net Metered Non-Residential | 150,000 kW | 7403 kW | 142,597 kW |
| Community Solar (Non-LMI and LMI) | 150,000 kW | 0 kW | 150,000 kW |
| Interim Subsection (t) Grid | 75,000 kW | 0 kW | 75,000 kW |

^ <https://njadi.programprocessing.com/> accessed May 31, 2022

ADI Market Segment Performance to Date (cont'd)

Energy Year 2023 ADI Capacity Blocks by Market Segment

| Market Segments | System Size | MW (dc) Capacity Blocks |
|---|---------------------------------|---|
| Net-Metered Residential | All Sizes | 150 MW |
| Net Metered Non-Residential | All sizes at or below 5 MW (dc) | 150 MW plus and unused EY2022 capacity |
| Community Solar including LMI and Non-LMI | All sizes at or below 5 MW (dc) | 150 MW |
| Interim Subsection (t) Grid | All Sizes | 75 MW or approximately 3 months from the CSI Program's first solicitation, whichever occurs first |

Energy Year 2023 ADI Program Subscription by Market Segment

| Market Segment | Capacity Block (dc) | Capacity Subscribed (dc) | Capacity Available (dc) |
|-----------------------------------|---------------------|--------------------------|-------------------------|
| Net Metered Residential | 150,000 kW | 125,373 kW | 24,627 kW |
| Net Metered Non-Residential | 287,834 kW | 61,772 kW | 226,065 kW |
| Community Solar (Non-LMI and LMI) | 150,000 kW | 0 kW | 150,000 kW |
| Interim Subsection (t) Grid | 75,000 kW | 5,190 kW | 69,810 kW |

^ <https://njadi.programprocessing.com/> accessed November 29, 2022

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NEW JERSEY SOLAR TRANSITION

Administratively Determined Incentive Program

ONE-YEAR CHECKUP STAKEHOLDER WORKSHOP

THE CADMUS GROUP LLC

DECEMBER 02, 2022



Consulting Team Supporting Modeling



CHAD LAURENT
Principal Investigator



EDWARD GALVIN
Modeling Lead





Overview of Incentive Modeling Approach

Modeling Approach

2021: Cadmus modeled performance-based incentives (PBI) needed for specific project return requirements

2023 Update: leverages 2021 base scenario modeling methodology with updated economic inputs

Updates keeping other variables constant:

- Capex based on actual (2020 – 2022) project data and inflation
- Opex based on inflation
- Interest rate changes in 2022
- Tax credits in light of the Inflation Reduction Act

2023 Update: single incentive type and term



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Modeling Approach

2023 Update: Re-model selected 10 project variants to refresh incentives

| Project Variant | Abbreviation | Capacity Tier if applicable | Modeled Capacity (kW) |
|---|--------------------|-----------------------------|-----------------------|
| Large Commercial Direct Owned Ground Mount | Comm_DO_Ground_Ig | 1 MW and greater | 3,500 |
| Medium Commercial Direct Owned Ground Mount | Comm_DO_Ground_med | 100 kW up to 1 MW | 500 |
| Large Commercial Direct Owned Roof Mount | Comm_DO_Roof_Ig | 1 MW and greater | 2,000 |
| Medium Commercial Direct Owned Roof Mount | Comm_DO_Roof_med | 100 kW up to 1 MW | 350 |
| Large Commercial Third-Party Owned Ground Mount | Comm_TPO_Ground_Ig | 1 MW and greater | 3,500 |
| Large Commercial Third-Party Owned Roof Mount | Comm_TPO_Roof_Ig | 1 MW and greater | 2,000 |
| Medium Commercial Third-Party Owned Roof Mount | Comm_TPO_Roof_med | 100 kW up to 1 MW | 250 |
| Floating | Floating | | 3,500 |
| Direct Owned Residential Roof Mount | Resi_DO_Roof | | 8 |
| Third-Party Owned Residential Roof Mount | Resi_TPO_Roof | | 8 |

Highlighted projects preliminarily modeled for today's presentation

The Floor is Open



Clarifying Questions?



Please add your questions to the meeting Q&A:

We will address questions in the order that they are received & provide opportunity for clarification.



Overview of System Advisor Model

Introduction to System Advisor Model (SAM)

SAM: techno-economic model to facilitate decision-making, developed by the National Renewable Energy Laboratory (NREL)

- PVWatts performance model estimates project energy production
- Estimates project financials through cost and revenue inputs
- Identifies PBI necessary to meet developer-required return (internal rate of return or payback year)

SAM Inputs | Key Financial Inputs

Third Party Ownership (TPO)

Key drivers to determine PBI:

- IRR Target and Target PPA rate

Assumptions and modeling method:

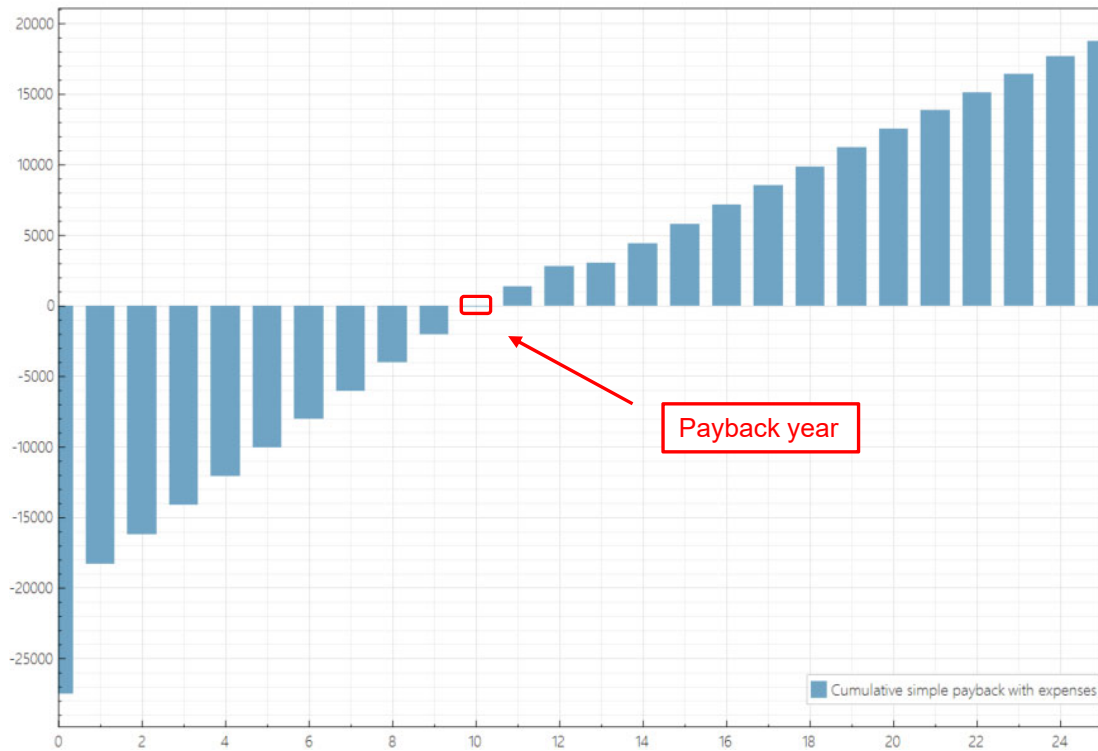
- Target PPA rates: 15% discount to electricity prices
- IRR target held constant and the PBI adjusted until target PPA rate achieved

| | | | | | |
|---|---|---|--|------------------------|--|
| Solution Mode | | | | Escalation Rate | |
| <input checked="" type="radio"/> Specify IRR target | IRR target <input type="text" value="11"/> % | IRR target year <input type="text" value="20"/> | PPA price escalation <input type="text" value="1"/> %/year | | |
| <input type="radio"/> Specify PPA price | PPA price <input type="text" value="0.1"/> \$/kWh | Inflation does not apply to the PPA price. | | | |

The user has the option to choose to input a PPA price or have SAM calculate the PPA by setting a developer IRR target. Cadmus chose the IRR target and then created a script that increased the PBI until a target PPA rate was met as well.

SAM Inputs | Key Financial Inputs

Direct Ownership (DO)



Autogenerated graph from SAM detailing example of residential cash flow with payback year of 10 (when cumulative cash flow crosses 0).

Key drivers of PBI:

- Utility Rate and Payback Year
- Assumption: payback differs for commercial and residential systems

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Variable Adjustments

Variable Adjustments - Capex

Comparison of Capex for 2021 and 2023 Update Projects

| Project Variant | 2021 | Update: 2023 | | Change \$ | Change % |
|--------------------|---------------------|--------------------------------------|---------|-----------|----------|
| | Modeled Cost (\$/W) | Modeled Cost with Adjustments (\$/W) | | | |
| Comm_DO_Ground_lg | \$ 1.90 | \$ 1.92 | \$ 0.09 | 5% | |
| Comm_DO_Ground_med | \$ 2.40 | \$ 2.57 | \$ 0.27 | 12% | |
| Comm_DO_Roof_lg | \$ 1.70 | \$ 2.24 | \$ 0.60 | 37% | |
| Comm_DO_Roof_med | \$ 2.10 | \$ 2.19 | \$ 0.17 | 8% | |
| Comm_TPO_Ground_lg | \$ 1.85 | \$ 1.92 | \$ 0.14 | 8% | |
| Comm_TPO_Roof_lg | \$ 1.65 | \$ 2.14 | \$ 0.55 | 34% | |
| Comm_TPO_Roof_med | \$ 2.05 | \$ 2.30 | \$ 0.33 | 17% | |
| Floating | n/a | \$ 2.08 | n/a | n/a | |
| Resi_DO_Roof | \$ 3.45 | \$ 4.49 | \$ 1.24 | 38% | |
| Resi_TPO_Roof | \$ 3.45 | \$ 3.58 | \$ 0.33 | 10% | |

- 2022 actual and pipeline costs reviewed by average, weighted average, and median to determine representative capex by project variant
- 6.9% inflation factor applied to project costs

Variable Adjustments - Opex

Comparison of Fixed Opex for 2021 and 2023 Update Projects

| Project Variant | ADI 2021 | | Update: 2023 | | | |
|--------------------|------------|--|--------------------|--------------------|------------|------------|
| | Total Opex | | Project Mgt. Costs | Property Tax/PILOT | Site Lease | Total Opex |
| Comm_DO_Ground_lg | \$ 5,000 | | \$ 5,456 | exempt | n/a | \$ 5,456 |
| Comm_DO_Ground_med | \$ 3,000 | | \$ 3,274 | exempt | n/a | \$ 3,274 |
| Comm_DO_Roof_lg | \$ 5,000 | | \$ 5,456 | exempt | n/a | \$ 5,456 |
| Comm_DO_Roof_med | \$ 3,000 | | \$ 3,274 | exempt | n/a | \$ 3,274 |
| Comm_TPO_Ground_lg | \$ 60,000 | | \$ 5,456 | exempt | \$ 60,015 | \$ 65,471 |
| Comm_TPO_Roof_lg | \$ 60,000 | | \$ 5,456 | exempt | \$ 60,015 | \$ 65,471 |
| Comm_TPO_Roof_med | \$ 11,625 | | \$ 1,773 | exempt | \$ 10,912 | \$ 12,685 |
| Floating | n/a | | \$ 6,915 | \$ 35,000 | \$ 70,927 | \$ 112,842 |
| Resi_DO_Roof | \$ 17 | | \$ 18 | exempt | n/a | \$ 18 |
| Resi_TPO_Roof | \$ 17 | | \$ 18 | exempt | n/a | \$ 18 |

- Inflation factor applied to historical costs

Variable Adjustments - Opex

Comparison of variable Opex (fees) for 2021 and 2023 Update Projects

| Project Variant | O&M Fee (\$/kW-yr) | |
|--------------------|--------------------|--------------|
| | 2021 | Update: 2023 |
| Comm_DO_Ground_lg | \$ 12.00 | \$ 13.09 |
| Comm_DO_Ground_med | \$ 14.00 | \$ 15.28 |
| Comm_DO_Roof_lg | \$ 12.00 | \$ 13.09 |
| Comm_DO_Roof_med | \$ 14.00 | \$ 15.28 |
| Comm_TPO_Ground_lg | \$ 12.00 | \$ 13.09 |
| Comm_TPO_Roof_lg | \$ 12.00 | \$ 13.09 |
| Comm_TPO_Roof_med | \$ 14.00 | \$ 15.28 |
| Floating | n/a | \$ 12.77 |
| Resi_DO_Roof | \$ 35.00 | \$ 38.19 |
| Resi_TPO_Roof | \$ 35.00 | \$ 38.19 |

- O&M fees calculated by applying inflation factor to Previous assumptions

Variable Adjustments

Interest Rates Adjustment Example for Comm_DO_Roof_Ig

| Index Name | Previous Index Rate (03/13/2020) | Current Index Rate (11/29/2022) | Adjustment (Per 2021 Stakeholder Survey) | Update 2023 |
|-----------------------------|-------------------------------------|------------------------------------|---|-------------|
| 10-Year US Treasury Bond | 1.1% | 3.7% | +6% | 9.7% |
| LIBOR | 0.9% | 5.6% | +3% | 8.6% |
| Prime | 4.3% | 7.0% | +1% | 8.0% |
| Prime | 4.3% | 7.0% | +2% | 9.0% |
| Average (rounded) | | | | 9.0% |

- 2023 Update adjustment leverages insights from 2021 stakeholder feedback
- 2021 stakeholder survey responses referenced market interest rates relative to indices
- 2023 Update applied stakeholder adjustments to updated index interest rates

Variable Adjustments

Interest Rates

| Project Variant | Not Adjusted for 2023 Update | | | 2021 | 2023 Update |
|--------------------|-------------------------------|----------------|-------------------|----------------------|-------------|
| | IRR Target (%) / Payback Year | Debt Share (%) | Loan term (years) | Annual Interest Rate | |
| Comm_DO_Ground_lg | 12.5% | 52.5% | 15 | 6.0% | 9.0% |
| Comm_DO_Ground_med | 12.5% | 52.5% | 15 | 6.0% | 9.0% |
| Comm_DO_Roof_lg | 12.5% | 52.5% | 15 | 6.0% | 9.0% |
| Comm_DO_Roof_med | 12.5% | 52.5% | 15 | 6.0% | 9.0% |
| Comm_TPO_Ground_lg | 9.7% | 52.5% | 12 | 6.0% | 9.0% |
| Comm_TPO_Roof_Lg | 9.7% | 52.5% | 12 | 6.0% | 9.0% |
| Comm_TPO_Roof_Med | 9.7% | 52.5% | 10 | 6.0% | 9.0% |
| Floating | 9.7% | 52.5% | 12 | 6.0% | 9.0% |
| Resi_DO_Roof | 10 | 47.5% | 13 | 5.5% | 8.5% |
| Resi_TPO_Roof | 9.7% | 47.5% | 10 | 6.5% | 9.5% |



Variable Adjustments

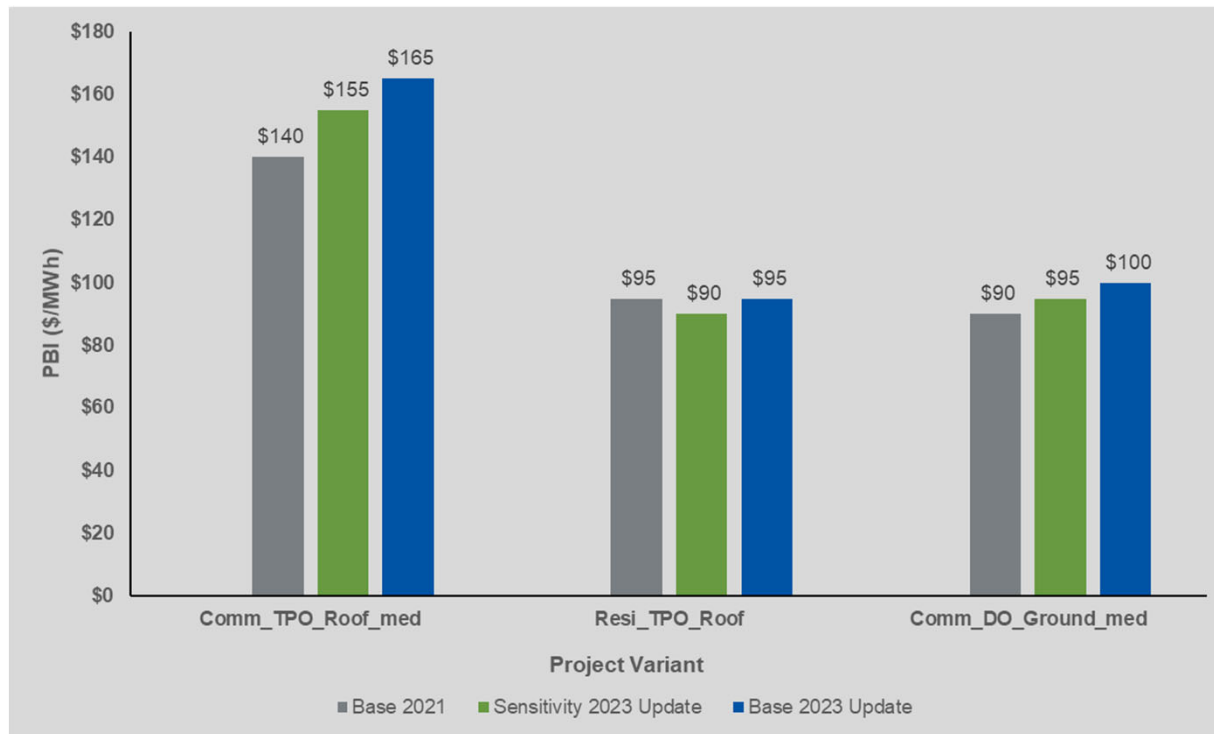
Investment Tax Credit (ITC)

| Project Variant | 2021 | 2023 Update |
|--------------------|-----------------------|-------------|
| | Investment Tax Credit | |
| Comm_DO_Ground_Lg | 22% | 30% |
| Comm_DO_Ground_med | 22% | 30% |
| Comm_DO_Roof_Lg | 22% | 30% |
| Comm_DO_Roof_med | 22% | 30% |
| Comm_TPO_Ground_Lg | 22% | 30% |
| Comm_TPO_Roof_Lg | 22% | 30% |
| Comm_TPO_Roof_Med | 22% | 30% |
| Floating | 22% | 30% |
| Resi_DO_Roof | 22% | 30% |
| Resi_TPO_Roof | 22% | 30% |

- Increase ITC from 22% to 30%
 - Assumed that wage and apprenticeship standards will be met for full 30% ITC
- Assume bonus ITC adders are not included

Preliminary Modeling Results

2023 update based on variable adjustments reviewed today



Sensitivity Scenario

- 1% subtraction in interest rate from Base 2023 value



The Floor is Open



Clarifying Questions?



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Stakeholder Comments and Questions



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the meeting Q&A:

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Thank You

The bottom of the slide features a dark blue gradient background. Overlaid on this are several bright blue geometric shapes: a curved shape on the left, a large triangular shape pointing upwards on the right, and a smaller triangular shape pointing downwards in the center, partially overlapping the larger one.