

CADMUS

NEW JERSEY SOLAR TRANSITION

Successor Program Draft Capstone Report Review

August 20, 2020



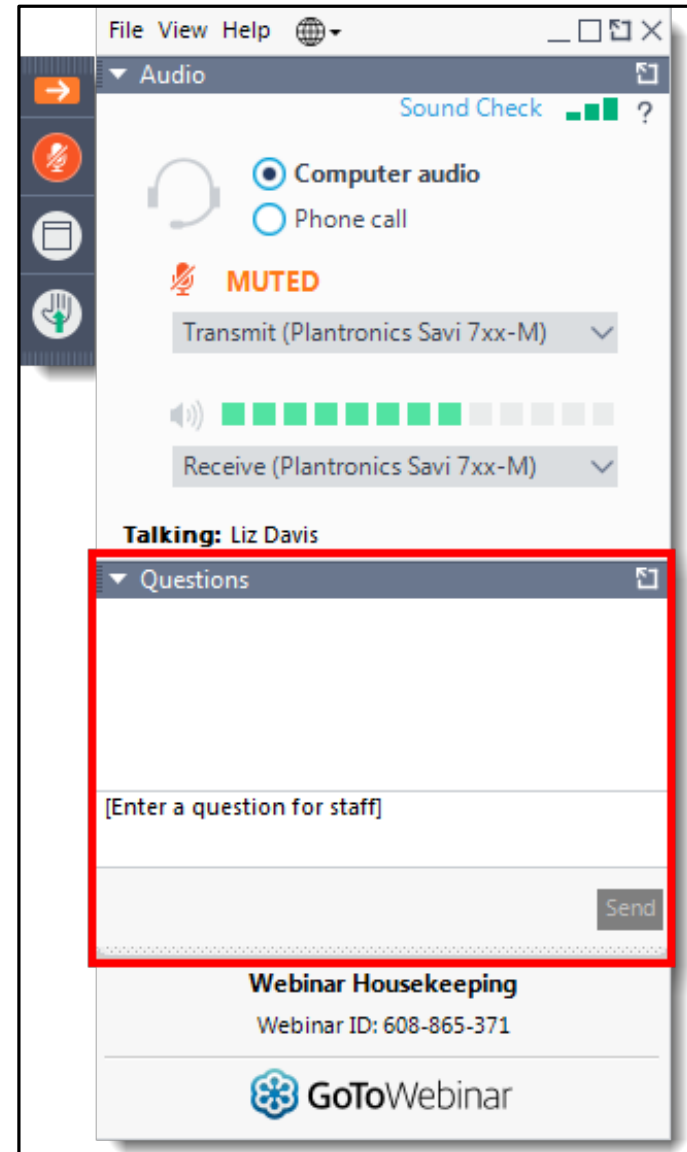
OPENING REMARKS



Webinar Logistics

Logistics:

- Please submit questions at any time during the meeting using the questions box on the right of your screen.
- Speakers will be called in the order in which they registered.
- The webinar is being recorded.



Agenda

- 10:00 a.m. Welcome, Introductions, and Stakeholder Meeting Logistics
- 10:10 a.m.
 - Presentation by Cadmus of the draft Successor Program Capstone Report, followed by Q&A
 - Stakeholder comments
- 12:00 p.m. to 1:00 p.m. Lunch Break
- 3:00 p.m. Meeting Conclusion

Next Steps

- **Written Comments**

- Due on or before 10:00 a.m. on Monday, August 31, 2020
- Please see the [Request for Comments](#) for instructions on how to submit comments.

- **TREC Payment Portal Webinar**

- Friday, August 21 at 10:00 a.m.
- <https://us02web.zoom.us/j/82628253060?pwd=WTdBTdVFSzVua1dsQ0lvZHNxdVNGdz09>
- Meeting ID: 826 2825 3060
- Passcode: 325493

Disclaimer

This presentation derives from the Draft Capstone Report dated August 10, 2020, and is delivered pursuant to Cadmus' obligations under a contract with the New Jersey Board of Public Utilities (BPU) in connection with the assessment of a successor solar program for the state. This document is provided "as is" based on information available as discussed below. The document is provided for information purposes only, and Cadmus and the BPU do not provide any representation or warranty, express or implied, as to the accuracy, completeness, reliability, or timeliness of any of the content or information contained herein, and Cadmus expressly disclaims all liability associated with the BPU's use of the report or information included therein. Any forecasts or projections contained herein are estimates only. This document does not provide a legal interpretation of any New Jersey statutes, regulations, or policies, nor should it be taken as an indication or direction of any future decisions by the BPU. In no event will Cadmus or the BPU be liable to you or anyone else for any decision made or action in reliance on the information in the report or for any special, consequential or similar damages, even if advised on the possibility of such damages.

Agenda

Opening Remarks

Summary of Stakeholder Engagement

Incentive Option Development

Modeling Results

Considerations & Recommendations

Summary of Stakeholder Engagement

Initial Solar Transition Stakeholder engagement

- Staff Straw Proposal
- Solar Industry Stakeholder Meeting
- Public Comment Stakeholder Meeting

Solar Transition Phase 1. Transition Incentive

- Stakeholder Workshop #1: Priorities for the Solar Transition
- Cost & Technical Survey
- Stakeholder Workshop #2: Transition Incentive Program, potential Successor Program policy pathways
- Cost Cap Stakeholder Meeting
- 2019/2020 Transition Incentive Stakeholder Meetings
- Technical Modeling Conference
- Revised 2019/2020 Transition Incentive and Modeling Addendum Stakeholder Meeting

Solar Transition Phase 2. Successor Program

- Stakeholder Workshop #3: Narrowing policy pathways for modeling of the Successor Program
- CEA's Statutory Cost Cap Stakeholder Meeting
- Successor Program's Incentive design Stakeholder Meeting
- Cost Survey
- Focus Groups: Solar & Finance Industry, Utilities & Load Serving Entities, Utility Customers & Customer Advocates

Incentive Option Development

Identify Successor Program Incentive Design Criteria

- Primary vs. Secondary Successor Plan Criteria

Review Range of Potential Design Options

- Began with a broad list of solar incentives utilized in other markets
- Narrowed down to three selected incentive types:

Total Compensation: Total compensation incentives are performance-based incentive that utilizes a tariff payment structure, where the incentive acts like a contract for differences between the value of energy and the total compensation value paid to eligible projects.

Fixed Incentive: Fixed incentives offer set prices for environmental attributes and other value associated with production (kWh) from a solar array. The fixed incentive compensation is paid in addition to (i) any revenues the facility may earn, such as for sales of electricity, and (ii) any costs avoided through reduced energy consumption.

Market-Based RECs with Floor: Market-based RECs with a price floor necessarily requires the presence of an RPS. Regulated entities, which are typically electricity suppliers, meet compliance of an RPS by acquiring and retiring RECs that are generated through renewable energy production.

Incentive Option Development

Incentive Types Chosen

Total Compensation Incentive

Advantages: Certainty, Flexibility, Transparency

Disadvantages: Complexity, Timing

Elements: Payment structure, price setting, price adjustment

Examples: RI Renewable Energy Growth Program

Fixed Incentive

Advantages: Reliability, Security, Simplicity

Disadvantages: Determining appropriate price level, Maintenance, Longevity

Elements: Payment structure, price setting, cost controls

Examples: Connecticut ZRECs, NY-SUN C&I MW Block, Illinois Adjustable Block Program

Market-Based RECs with Floor

Advantages: Demand, Stability, Competition

Disadvantages: Volatility, Price-Setting Difficulty, Complexity

Elements: Whether the price floor will be soft or firm, long-term contracts or tariffs, SREC factors

Examples: Massachusetts SREC I and II

Modeling Results

Comparison of PBIs (minimum incentives)

- We reviewed SAM Cases on Monday: derivation, inputs, and modeling
- Now we provide a brief review of some initial results
- Provide comparisons for a sense of relative incentive needs
- Typical SAM Run “scenarios”
 - Subset of SAM Cases: Comm_DO_Roof_med, Grid_Ground, and Resi_TPO_Roof
 - Usually modeling 15-year incentive term

Modeling Results

Draft results: comparing SAM Cases

Some observations:

- DO typically lower than TPO counterparts
- Ground mounted generally lower with scale and optimal orientation
- Carports higher – higher costs and suboptimal orientation
- Stepdown in ITC requires higher incentives
- Community Solar benefits from scale and blend with higher residential rates

SAM Case	PBIs (\$/MWh)	
	2020	2021
Comm_DO_Ground_Ig	\$ 60	\$ 65
Comm_DO_Ground_med	\$ 75	\$ 80
Comm_DO_Roof_Ig	\$ 65	\$ 70
Comm_DO_Roof_med	\$ 80	\$ 85
Comm_DO_Roof_sm	\$ 100	\$ 110
Comm_TPO_Carport	\$ 170	\$ 180
Comm_TPO_Ground_Ig	\$ 95	\$ 105
Comm_TPO_Ground_med	\$ 135	\$ 140
Comm_TPO_Roof_Ig	\$ 105	\$ 110
Comm_TPO_Roof_med	\$ 135	\$ 140
Comm_TPO_Roof_sm	\$ 150	\$ 155
CS_Ground	\$ 50	\$ 55
CS_Roof_Ig	\$ 55	\$ 60
CS_Roof_med	\$ 90	\$ 100
Grid_Ground	\$ 85	\$ 85
Grid_Ground_OOS	\$ 50	\$ 50
Grid_Roof	\$ 90	\$ 90
Resi_DO_Roof [1]	\$ 85	\$ 95
Resi_TPO_Roof	\$ 85	\$ 95

Scenario information:

Incentive Type	Fixed Incentive
Incentive Term	15 years [1]
Modeling Year	Years 1 and 2
Utility	PSEG

Notes:

1. Resi_DO_Roof has an incentive Term of 10 years, matching the target Payback Period (see Draft Capstone Report text for discussion).

Modeling Results

Draft results: comparing incentives over time

- Higher incentives in early years with stepdowns of ITC and bonus depreciation
- Longer-term decline reflects cost reductions and growth in electricity/PPA prices

SAM Case	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Comm_DO_Roof_med	\$ 80	\$ 85	\$ 110	\$ 105	\$ 105	\$ 105	\$ 100	\$ 100	\$ 100	\$ 95	\$ 95
Grid_Ground	\$ 85	\$ 85	\$ 100	\$ 100	\$ 100	\$ 95	\$ 95	\$ 95	\$ 95	\$ 90	\$ 90
Resi_TPO_Roof	\$ 85	\$ 95	\$ 130	\$ 125	\$ 120	\$ 120	\$ 115	\$ 110	\$ 105	\$ 100	\$ 90

Scenario information:

Incentive Type	Fixed Incentive
Incentive Term	15 years
Modeling Year	All years
Utility	PSEG

Modeling Results

Draft results: comparing incentive terms & types

Looking at incentive terms:

- Shorter incentive term typically requires higher incentive

Representative SAM Cases	Incentive Year	
	10 Years	15 Years
Comm_DO_Roof_med	\$ 80	\$ 80
Grid_Ground	\$ 100	\$ 85
Resi_TPO_Roof	\$ 105	\$ 85

Scenario information:

Incentive Type	Fixed Incentive
Incentive Term	As indicated above
Modeling Year	Year 1
Utility	PSEG

Comparing incentive types:

- Incentive types with higher risk require higher incentive

Representative SAM Cases	Total	Market with	
	Compensation	Fixed PBI	Floor
Comm_DO_Roof_med	\$ 75	\$ 80	\$ 85
Grid_Ground	\$ 70	\$ 85	\$ 90
Resi_TPO_Roof	\$ 55	\$ 85	\$ 100

Scenario information:

Incentive Type	As indicated above
Incentive Term	15 years
Modeling Year	Year 1
Utility	PSEG

Modeling Results

Draft results: comparing EDC rates

- For commercial, PSEG is much lower electricity rate than the others, requiring higher incentives
- Residential and Large C&I more uniform

Representative SAM Cases	Service Class	Lowest Rate/Highest PBI			Highest Rate/Lowest PBI		
		Utility	Electricity Rate (\$/kWh)	PBI Incentive (\$/MWh)	Utility	Electricity Rate (\$/kWh)	PBI Incentive (\$/MWh)
Resi_TPO_Roof	Residential [1]	JCPL	\$ 0.1426	\$ 130	ACE	\$ 0.1899	\$ 70
Comm_DO_Roof_med	Commercial [1]	PSEG	\$ 0.0634	\$ 80	ACE	\$ 0.1550	\$ -
Comm_DO_Roof_lg	Large C&I [2]	PSEG	\$ 0.0473	\$ 65	ACE	\$ 0.0580	\$ 45

Scenario information:

Incentive Type	Fixed Incentive
Incentive Term	15 years
Modeling Year	Year 1
Utility	As indicated above

Notes

1. Electricity rates from OpenEI via SAM.
2. Derived from EDCs' tariffs.

Considerations

Selected Material Considerations

COVID-19

While the ultimate impact of the global pandemic may take months or longer to emerge, various constraints or political/business reactions to the virus have already imposed or could foreseeably result in a number of material issues for the solar industry.

ITC Stepdown

The credit step-down will likely pose significant implications for project economics and financing structures. Further, the COVID-19 pandemic may result in compounding effects in terms of availability of taxable income, tax equity capital, and access to bank debt.

Ongoing Cost Cap Proceedings

BPU currently engages in proceedings and internal discussions regarding calculation of the Cost Cap imposed by the CEA.

Section 201 Tariffs

Trade tariffs placed on cells and modules imported from China have disrupted project procurement, prompted some domestic production, and created greater pricing uncertainty.

FERC Orders

The recent FERC decision on MOPR could substantially constrain or eliminate a revenue stream for grid supply projects, even with potential adjustments for solar's estimated cost.

Recommendations

Based on stakeholder feedback, analysis of New Jersey's (and other state) programs, and modeling at project and market levels, Cadmus provides the following primary recommendations:

- Maintain flexibility
- Implement a Fixed Incentive program as a first stage, moving towards a Total Compensation paradigm
- Deploy a mix of competitive solicitations and administratively set incentives
- Maintain robust estimates of project economics
- Differentiate the incentive between project types
- Differentiate the incentive between utility territories

Recommendations

Primary Recommendations Continued

- Consider treating DO systems differently
- Conduct a market potential study
- Coordinate with related programs
 - Utilities
 - Net metering
 - Other clean energy programs and policy goals
 - Energy Storage
- Evaluate incentives relative to those in the Transition Incentive
- Create working groups for on-going discussions

CADMUS

A blue-tinted photograph of a business meeting. Several people in professional attire are silhouetted against a large window with horizontal blinds. Some are seated at a table, while others stand and talk. A large, semi-transparent blue circular graphic is overlaid on the left side of the image.

Thank You