



**Docket No. QO20020184, IN THE MATTER OF THE ONE YEAR REVIEW OF THE ADMINISTRATIVELY DETERMINED INCENTIVE PROGRAM**

**Solar Energy Industries Association Comments**

**December 9, 2022**

**I. Executive Summary**

The Solar Energy Industries Association (SEIA) appreciates the opportunity to offer input to the New Jersey Board of Public Utilities (BPU or Board) regarding whether to adjust the incentive levels or capacity blocks in the Administratively Determined Incentive (ADI) Program.

The Solar Energy Industries Association (SEIA) is the national trade association for the United States solar and energy storage industries. With more than 1,000 member companies nationwide, SEIA is leading the transformation to a clean energy economy, creating the framework for solar to achieve 30% of U.S. electricity generation by 2030. SEIA works with its 1,000 member companies and other strategic partners to fight for policies that create jobs in every community and shape fair market rules that promote competition and the growth of reliable, low-cost solar power that is increasingly paired with energy storage. SEIA has more than 45 member companies located in New Jersey with many more national firms that are either already conducting business in the state or considering investing in New Jersey.

Our comments reflect the on-the-ground experience our members have developing and deploying solar projects both in New Jersey and across the United States, with particular insights into the market's adjustment to the ADI Program from the Transition Incentive Program. Our comments are organized with an opening narrative section explaining our positions followed by specific answers to the questions posed by the BPU. These answers are designated using blue text.

This year New Jersey eclipsed 4 GWs of solar installations, which is an outstanding achievement and a testament to the early investment New Jersey made in the solar industry. However, most, if not all, of the installations coming online this year are still from the Transition Incentive program, not the ADI program, and the transition to the ADI program is occurring during a period of unprecedented change in the United States. New Jersey's solar industry was not immune to global economic trends and our members continue to navigate a supply chain riddled with bottlenecks and delays. Given the magnitude of these ongoing challenges, SEIA would like to offer our assistance in thinking about how to adjust the ADI program in a way that truly provides assurances of continued strong development over the coming year without risking New Jersey jobs, investments, and consumers.

## II. Historic Price Increases and Supply Chain Constraints Justify Increased ADI Incentive Levels

The long-term health of the NJ solar industry, and our ability to meet NJ's ambitious solar goals, is contingent on the health of the ADI program pipeline and decisions the BPU makes about the ADI program, a program where incentive levels were set without an expectation of record inflation or record price increases in solar modules and equipment.

After a decade of cost declines, 2021 was the first year that solar system prices increased consistently year-over-year and quarter-over-quarter.<sup>1</sup> Over the last 18 months, shipping constraints and other supply chain challenges stemming from the global pandemic and trade instability have led to price increases across the U.S. solar industry. For the fifth consecutive quarter, year over year prices have increased across all market segments leaving commercial solar prices 15% higher and residential prices 12% higher than at the start of 2021. Our forthcoming WoodMac/SEIA Solar Market Insights report coming out on December 13 will unfortunately indicate that this trend of price increases across all market segments is continuing.

System pricing remains elevated, mainly due to rising module prices. Module pricing is at its highest level since 2016 because of supply chain challenges, trade policies, and high polysilicon prices. While the Covid pandemic led to supply chain challenges throughout the industry, the spring 2022 Anti-Dumping/Countervailing Duties (ADCVD) petition brought by Auxin Solar led to sharp reductions in module imports, raising module prices dramatically overnight. While President Biden issued an Executive Order offering short-term relief from tariffs, on December 2, 2022 the Commerce department issued a preliminary determination affirming that certain companies in Southeast Asia are circumventing duties imposed on Chinese solar products. Even with tariffs suspended until June 2024, the decision will constrain module supply and put upward pressure on module prices.

In addition, module importers are currently working with Customs and Border Protection to provide appropriate documentation to satisfy the requirements of the Uyghur Forced Labor Prevention Act (UFLPA). The process has been slow-moving, restricting module imports and leading to extensive project delays, especially for large commercial and community solar systems. While some importers are beginning to see shipments released from detention, module imports are not expected to flow normally until at least the second half of 2023.

This combination of factors has led to an expectation that 2022 module imports will be 65% of the amount seen in 2021, as shown in the graphic below.<sup>2</sup> The reduction in imports has served to decrease module supply and raise module prices across all segments.

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<sup>1</sup> SEIA/Wood Mackenzie *U.S. Solar Market Insight Q3 2022*

<sup>2</sup> Ibid

### Estimated impact of trade policies on module imports (relative to 2021)



Source: Wood Mackenzie

It is also worth pointing out that the residential and commercial segments – which typically have shorter procurement cycles – saw an immediate spike in module prices because of the anticircumvention investigation, and with ongoing module import uncertainty, we have not seen prices fall back to where they were prior to the launch of New Jersey’s solar transition

Raw material prices including polysilicon, copper, steel, and aluminum remain at historic levels, further leading to rising equipment prices for all segments. Inverter prices have been steadily increasing as manufacturers raise prices due to inflation.

The totality of these circumstances, especially when paired with market underperformance in the first year of the ADI Program, justify increasing ADI incentive levels, especially in the non-residential market segment.

### III. The Residential Market Incentive Should Not Be Arbitrarily Reduced

Net metered residential market segment registrations are on a pace that will commit the full 150 MW of allocated capacity well before the conclusion of EY 2023. However, this trend doesn’t consider attrition for these projects, which will result in less than 150 MW of installations, or the fact that labor rates for the residential segment are also increasing due to skilled labor shortages. It is critical that the BPU recognize that the spike in applications during this past summer is largely due to the fact that registrations during the first 6+ months of the ADI were roughly half the number of registrations under the TREC program due to learning pains with the new program and the long processing times. This inevitably led to a backlog of projects that then were applied for in the summer. The data available does not suggest that this is a long-term or sizable increase in the actual installations occurring in the residential segment. Registrations in September and October have regressed back to approximately 15 MW per month, which is a more normal pace, and when applying a 20% attrition rate suggests a rate of 140-150 MW installations in a year. If the BPU’s objective is to ensure a healthy solar industry, it would be a mistake to reduce the

residential solar incentive to moderate market activity and throttle development to avoid reaching an arbitrary market segment allocation.

Just like the commercial segment, the residential market segment saw an immediate spike in module prices as a result of the anticircumvention investigation, and prices have not fallen back to where they were prior to the launch of New Jersey's solar transition. Rising interest rates have also increased the cost of capital for businesses, with a year-over-year increase in the mid-single digits. These facts alone justify maintaining the current ADI incentive level even after accounting for the higher ITC value from the IRA.

Furthermore, as we have stated previously, the residential sector has a sales pipeline that can be severely harmed by arbitrary gaps in capacity availability, which justifies an always on incentive program. Thus, the likelihood of early subscription of the full 150 MW market segment allocation justifies improvements to the ADI program design: a larger capacity allocation or exempting the residential sector from the annual capacity allocation. A larger capacity allocation would have to account for an expected attrition rate and provide enough buffer to prevent the market segment from facing a potential availability cliff every single energy year. Given that necessity of maintaining continuous access to the program (and because projects must receive approval before moving forward with installation), it would be logical to not have a hard cap on program participation in the residential segment at all. An arbitrary cap that everyone knows cannot actually be hit without significant harm for the industry or is large enough that there is no risk it will be fully subscribed serves no real purpose except to create uncertainty for the market.

Should the BPU ignore Cadmus modeling that justifies maintaining or increasing residential incentives, an arbitrarily decision to lower the incentive risks creating market underperformance and the loss of jobs.

#### **IV. Recommended Improvements to Modeling Assumptions**

SEIA agrees with Cadmus's assumption that wage and apprenticeship standards will be met for the full 30% ITC, and generally supports the Cadmus approach to assessing whether inflationary pressures warrant revisiting ADI Program incentive levels. However, we provide the following improvements to Cadmus modeling.

It is reasonable to assume an increased cost of project debt by 3% but rising interest rates affect all parts of capital structure, including the cost of project equity. Thus, a 3% increase in debt should result in at least a corresponding 3% increase in IRR. However, it is worth noting that these debt assumptions imply good investment grade credit. For the non-residential segment, customer credit has a direct impact on project debt and equity requirements, as these projects are not easily securitized in a portfolio and often transacted individually. Currently and for the foreseeable future, the general US commercial credit outlook is negative, and thus the true cost of financing will be much higher for most of the non-residential segment.

As we stated in our comments on the Capstone report, using a 15% discount estimate for customers to derive the PPA rate is not in line with the current market. Residential discounts should be modeled

between 20% to 25% and commercial and industrial, or non-residential, discounts should be modeled at 25%.

Additionally, while it is reasonable that modeling results suggest an increased incentive level for all market segments, it is not clear what Cadmus is assuming with respect to hardware or soft costs. The quarterly *Wood Mackenzie/SEIA Solar Market Insights* reports have made clear that capex across all segments remains high as inflation continues to rise, trade disruptions reduce equipment supply and labor prices climb. The combined effect of these factors has led to year over year price increases ranging from 8- 13% depending on the segment. For example, Cadmus does not appear to be modeling the additional costs for carports and ground mounted solar due to steel price increases. Doing so would likely justify an increased incentive or location-based adder for canopies and carports, similar to the \$20/MWh adder for public entities.

Furthermore, the most recent U.S. Solar Market Insight report, published jointly by SEIA and Wood Mackenzie, suggested that prices for microinverter and single-phase inverters had increased by 4-5% compared to Q2 2021. Our forthcoming WoodMac/SEIA Solar Market Insights report will confirm that manufacturers continue to raise prices almost every quarter due to inflationary pressures, and that central inverters that may include low and medium-voltage switchgear solutions have also increased in price as manufacturers face shortages of transformers.

Additionally, while differences in racking materials and design have implications for labor costs, grounding requirements, and the need for additional structural support, it is worth noting that as the aluminum index continues to rise in 2022, residential and commercial rooftop racking costs have increased by 14% and 12% year-over-year, respectively.

Finally, members report that interconnection costs will be increasing over time, and SEIA recommends Cadmus Modeling should be prospective and in line with the interconnection cost increases.

## **Part II- Answers to Specific BPU Questions.**

1. Cadmus proposes to adjust Operational Expenses by annual inflation rates, and to adjust current Capital Expenses by inflation rates and other cost escalators researched from industry data.
  - a. Please comment on the proposal to use Bureau of Labor Standards CPI-U data to escalate operational and capital expenses. [This is an appropriate metric.](#)
  - b. Please comment on the proposal to utilize industry data to apply a separate supply chain adjustment, and if so, what data range should be used? [It is appropriate to apply a cost increase as a result of supply chain complications for capex between 7-14% as referenced by industry reports, such as Wood Mackenzie and Bloomberg New Energy Finance.](#)

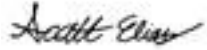
- c. Are there market segment-specific considerations when making cost adjustments? Cadmus' price adjustments for all large-scale ground mounted segments are smaller than those for other segments. In estimating system pricing for the utility-scale segment, the SEIA/Wood Mackenzie *U.S. Solar Market Insight* (SMI) report series assumes all utility-scale modules are procured one year prior to commercial operation. However, module prices have increased dramatically over the last year, indicating that module pricing for 2023 systems will be considerably higher than is currently presented in the latest SMI report. If Cadmus is using this resource to inform large-scale ground mount system pricing, they should assume module pricing increases similar to those in the other non-residential segments.
    - d. Are there additional or alternative data sources that should inform cost adjustments? SEIA has no additional comment at this time.
  2. Interest rates have increased in 2022. In addition to cost and tax credit assumptions, Cadmus can adjust the cost of financing from the previous model runs. The cost of financing had been set at between 5.5% and 6.5%, depending on the project type, in the previous Cadmus Capstone report. Should increased interest rates be accounted for in modeling incentive requirements using the NREL's System Advisor Model? If so, are there suggested data sources for this adjustment? Yes, SEIA generally supports the updated annual interest rate of 8.5-9.5% adjustment as demonstrated at the BPU stakeholder meeting on December 2<sup>nd</sup>.
  3. Cadmus proposes to adjust investment tax credits for all market segments according to the Inflation Reduction Act, increasing tax credits to 30%. How should the changes in federal tax incentives from the Inflation Reduction Act be accounted for in modeling incentive requirements using the NREL's System Advisor Model?
    - a. When adjusting tax credits, are there any considerations for specific market segments? SEIA agrees with the Cadmus assumption that all market segments will seek a 30% ITC.
    - b. How should the wage and apprenticeship requirements be considered for tax credit adjustments? SEIA agrees with the Cadmus assumption that the wage and apprenticeship standards will be met for the full 30% ITC.
  4. Does potential funding from the Infrastructure Investment Act require adjustment to any inputs in modeling incentive requirements using the NREL's System Advisor Model? NREL released a System Advisor Model update on November 21, 2022. Since this update did not incorporate potential funding from the Infrastructure Investment Act, we do not recommend further adjustments to account for that uncertain possibility.
  5. Does the pace of registration submission into the residential market segment since inception and the likelihood of early subscription of the full 150 MW market segment allocation before the close of Energy Year 2022 support a change in incentive level from the initial value of \$90 per MWh?

Should the change in incentive level occur regardless of the modeling results? No, the pace of registration submission into the residential market segment should not be used as an excuse to reduce the incentive level from the initial value of \$90 per MWh. The Cadmus preliminary modeling results indicate that incentive levels should be moderately increased or remain constant, which SEIA recommends. SEIA opposes reducing the residential solar incentive arbitrarily to moderate market activity and throttle development to avoid reaching an arbitrary market segment allocation. The activity in the market can only be interpreted to mean that the ADI incentive is financially viable for residential customers, which is further supported by the Cadmus modeling. It is not clear how one could differentiate between the incentive being financially viable or too lucrative purely based on the rate of registrations - which is why the Cadmus modeling is so important. If the ADI incentive is financially viable and New Jersey companies are investing resources, you would expect to see a strong customer response. Throttling the incentive level significantly below Cadmus' modeling results risks crossing the "financially viable" tipping point, which won't be apparent until it is too late to fix. The non-residential market segment's experience in the ADI shows that this risk is very real. We further note that the pace of registration submissions is different than installations and that the BPU does not account for project attrition.

6. Does the relatively slow uptake in registration submission in the non-residential market segments and the existence of excess capacity in this allocation for Energy Year 2022 support a change in incentive levels from the initial values? Yes, we do not believe that the relatively slow uptake in registration submission in the non-residential market segment and the existence of excess capacity is in large part due to "demand pull" resulting from the closure of the TI program offering a higher incentive. Rather, we believe the primary reason for market underperformance is that the non-residential incentive was set lower than recommended by initial Cadmus modeling, coupled with historic price increases in the non-residential solar market segment. We agree with the Cadmus preliminary modeling results shared at the December 2<sup>nd</sup> stakeholder meeting that the non-residential incentives should be increased and reiterate our previous request for a location-based adder for canopies and carports, a market that has effectively been closed by the current incentive level set by the BPU.
7. Assuming the answer to question 5 is yes and the modeling supports a change in the residential market segment incentive value, how and when should modified incentive values in the residential market segment be implemented? SEIA recommends that any change in the residential market segment incentive value be implemented on a forward-going basis after the BPU decides to make a change.
8. Assuming the answer to question 6 is yes and the modeling supports an increase in the non-residential market segment incentive values, how and when should the altered incentive values be implemented? SEIA recommends that any change in the non-residential market segment incentive value be implemented on a forward-going basis after the BPU decides to make a change.

9. What other issues should be considered in the One-Year Program Review? [SEIA has no additional comment at this time.](#)

Sincerely,

A handwritten signature in black ink that reads "Scott Elias". The signature is written in a cursive style.

Scott Elias  
Director of State Affairs, Mid-Atlantic  
Solar Energy Industries Association