Impact of the Auxin Solar Tariff Petition

Solar Industry Impacts from U.S. Department of Commerce Investigation into Imports of Crystalline Silicon Photovoltaic Modules and Cells from Cambodia, Malaysia, Thailand and Vietnam

April 26, 2022
Background: Solar is an Economic Engine

- As of 2020, more than 230,000 Americans work in solar at more than 10,000 companies in every U.S. state.

- In 2021, the solar industry generated nearly $33 billion of private investment in the American economy.

Source: National Solar Jobs Census 2020
Methodology

• Content that follows is based on results from two surveys and a separate impacts analysis.

• General Survey
  • This survey seeks to measure impacts of Dept. of Commerce’s decision to take up the Auxin anti-circumvention petition on solar companies’ business and employment expectations in 2022.
  • 730 responses collected between March 31 and April 21 from SEIA member and non-member companies.
  • From the 730 responses, we matched 596 business locations from SEIA’s database of companies active in the U.S. solar industry. These responses make up all state-level impact analysis presented.
Methodology

Project-Level Survey

• This survey focuses on impacts to specific utility-scale projects (generally larger than 1 MWac).

• Responses for this survey were collected between March 31st and April 21st from SEIA members and non-members.

• Multiple responses concerning the same project were identified and deduplicated such that the results represent impacts to 318 projects across 39 states.

• Projects reported as complete, or that had modules delivered or that will receive modules not covered by this proceeding were filtered out of this analysis.

• Of the 318 projects reported as impacted, 85 were matched to projects reported by the Energy Information Administration (EIA) as of the end of March 2022.

Impacts Analysis

• SEIA’s Research team conducted this analysis the week of April 18 – 22.

• The analysis aims to assess the impacts of constrained module supply on previously-expected U.S. solar deployment, represented by the baseline forecast presented in SEIA/Wood Mackenzie US Solar Market Insight 2021 Year in Review, released in early March 2022.

• The analysis assumes an affirmative decision on the Auxin petition, with tariffs imposed in the 50% - 250% range.

• Imported module supply from the named countries is sharply restricted (though not entirely eliminated), with global capacity outside the named countries expanding over time, in line with previously planned factory construction/expansion timelines.

• Existing and future module and cell supply data sourced from U.S. Customs and Border Protection, SEIA/Wood Mackenzie US Solar Market Insight and public announcements.
Survey Results

Data as of 4/21/2022

730 survey responses from solar energy and energy storage companies
596 company locations matched to survey responses
If your company purchases or uses PV modules, have you received indication that your expected module supply has been delayed or canceled?

Four-fifths of respondents that purchase or use modules report canceled or delayed module supply.
If your company purchases or uses PV modules, have you received indication that your expected module supply has been delayed or canceled?

Survey Response Batches in Order Received

- Canceled or Delayed
- Not Yet Notified
- Don't Know

Reported cancellations and delays increasing over time.
83% of respondents report module supply cancelation or delay.
How do you expect this investigation into imports from Cambodia, Malaysia, Thailand and Vietnam to impact your U.S. business in 2022?

Companies expect damage across the value chain.

**80% of domestic manufacturers** responding to the survey expect severe or devastating impacts.
Most energy storage projects are paired with solar. Without the solar components, the energy storage components are likely to become uneconomical. Putting aside the economics, moving forward would require renegotiation of all project financing agreements.

Massive impact on solar and energy storage industries

How do you expect this investigation into imports from Cambodia, Malaysia, Thailand and Vietnam to impact your U.S. business in 2022?
Percent reporting “severe” or “devastating” negative impact to solar business from Department of Commerce action on solar imports

* Insufficient data for states in grey.
What percent of your company's U.S. solar and storage workforce is at risk due to this tariff investigation?

- 70% of respondents report that at least half of their solar and storage workforce is at risk.
- Over 200 respondents report that their entire solar and storage workforce is at risk.
What percent of that business volume is now at risk?

4/5 of respondents report at least half of their current-year solar pipeline at risk.

Many report larger risk to their 2023 pipeline.
Utility-Scale Project Impacts

Data as of 4/21/2022

318 specific projects in 39 states identified based on voluntary reporting
Utility-Scale Project Developers Reporting Massive Disruption

Projects reporting:
- Delays
- Layoffs
- Hiring freezes
- Massive cost increases (often untenable)
- Project cancelations

Projects with complete racking but no modules
Projects with only some of the modules needed to finish
Extreme uncertainty
New project development on hold

Blurry distinction between delayed and canceled:
- Developers don’t know when they might be able to get modules and some delays may drag on to the point of project failure.
- Projects pushed to later years eat into what is possible from new projects.
- Brain drain from industry as those laid off seek employment elsewhere, abandoning project development potential.
Currently Reported Impacts (Canceled or Delayed) on Utility-Scale Solar Projects: Solar Capacity Impacted (Megawatts-direct current, MWdc)

- 318 projects
- 50,800 MWdc of solar
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

*State figures rounded to 10 MWdc to help ensure anonymity.*
Currently Reported Impacts on Utility-Scale Solar Projects: Solar and Storage Investment at Risk ($ millions)

- $52 billion utility-scale investment at risk
- 318 projects
- 50,800 MWdc of solar
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

*State figures rounded to $10 million to help ensure anonymity.
42% of Known Utility-Scale Solar Pipeline Disrupted

- 318 projects
- 50,800 MWdc of solar
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

*State figures rounded to 10 MWdc to help ensure anonymity.
Baseline and Auxin Tariffs

Baseline Q1-22 Scenario

- Prior to the imitation of the Auxin proceeding, Wood Mackenzie Power and Renewables produced a baseline forecast for annual solar deployment in the U.S.

- This forecast was published in the U.S. Solar Market Insight 2021 Year in Review report in early March 2022.

- As part of this baseline, deployment was expected to dip by 7% due to supply chain issues exacerbated by a previously rejected anticircumvention petition.

- Further, the baseline accounts for the expected expiration of the federal solar investment tax credit in 2024 under current law.

Auxin Tariffs/Auxin Effect Scenario

- This scenario restricts supply to existing manufacturing capacity available to serve the U.S. market without the potential for massive tariffs resulting from the Auxin petition. Only China has sufficient existing manufacturing capacity to replace lost supply from southeast Asia but imports from China are subject to high and uncertain AD/CVD tariffs and section 301 tariffs making them largely untenable.

- New factories take years to site, permit, construct and ramp. This scenario accounts for previously planed manufacturing capacity expansions outside of Cambodia, Malaysia, Thailand and Vietnam. That capacity will be insufficient to meet baseline U.S. demand for the next several years.
Proceeding with the Auxin petition would lead to 34 GW of lost deployment over next 4 years.

We can expect forecasted installations to be cut in half this year and next if tariffs are applied.

With the Auxin petition forecasted 2022 deployment will drop 48%.

*Annual deployment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.
Solar Employment Under Auxin Tariffs

- More than **100,000 jobs** could be lost if the Auxin tariffs are imposed.
- While some of these jobs would be new jobs not added, the vast majority would be layoffs of existing workers.
- **16,000–18,000 solar manufacturing jobs** would be not realized between 2022-2023 due to the imposition of tariffs, the majority of which would be layoffs.
- Roughly **31,000 were employed in solar manufacturing in 2020**, the most recent year for which survey data is available.

*Employment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.*
Auxin Tariffs Could Cost 18,000 Manufacturing Jobs

- Most solar manufacturing jobs in the U.S. are not related to module supply chain.
- Mounting, racking, trackers, and other balance of system components comprise the overwhelming majority of domestic solar manufacturing employment.

*Employment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.
Proceeding with the Auxin petition will mean an increase of 364 million metric tons of CO₂ emissions. This is equivalent to the annual emissions of 97 coal plants. The difference between the Auxin Scenario and Biden goal is equivalent to two full years of electricity-sector emissions.
Additional Background
**U.S. Panel Production Threatened by Falling Cell Imports**

- Domestic crystalline silicon module/panel production is dependent on imported cells.
- In 2021, nearly half of all cell imports came from the four target countries.
- Cell imports have fallen since the Department of Commerce initiated its anticircumvention proceeding.
- Solar Cell imports have dropped from a 4-week moving average of 75 MW on March 7th to 42 MW on April 18th.
- This is despite a cell quota that doubled from 2.5 GW in 2021 to 5 GW this year.

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**Weekly Crystalline Silicon Solar Cell Imports**

<table>
<thead>
<tr>
<th>Period</th>
<th>Megawatts DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 8 - 21</td>
<td>180</td>
</tr>
<tr>
<td>Feb 22 - Mar 7</td>
<td>120</td>
</tr>
<tr>
<td>Mar 8 - 21</td>
<td>140</td>
</tr>
<tr>
<td>Mar 22 - Apr 4</td>
<td>80</td>
</tr>
<tr>
<td>Apr 5 - 18</td>
<td>60</td>
</tr>
</tbody>
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*Source: U.S. Customs and Border Protection (Corrected)*
More Aggressive Growth Needed to Reach Climate Goals

The baseline forecast is now scrapped and the prospect of achieving climate goals grows dimmer each day this investigation continues.

*Annual deployment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.
Bringing Supply Chain to the U.S. Would Take Years

- Even siting and permitting a U.S. plant could take a year or more.
  - Construction and production ramp could take an additional 2-3 years.

- Interim devastation to the downstream industry would reduce the domestic customer base for prospective domestic manufactures.
  - As experienced workforce leaves the industry, recovery could take years.

- Without manufacturing incentives and the right policy environment, these tariffs (like tariffs before them) are not enough to draw billions of investment in new domestic manufacturing. It is simply still too risky for many manufacturers.
Take SEIA’s market impact survey:

seia.org/AuxinImpacts
Submit Data on Impacts from the Auxin Tariff Petition

For anyone engaged in the U.S. solar or storage industries

Companies of all sizes, including those that work on everything from residential to utility-scale projects, should complete this form to provide a holistic and qualitative sense of how they expect the anti-circumvention investigation to impact their businesses and workforce.

For those with project-level impact data

Project-level data for large projects will be extremely valuable to show policymakers detailed and concrete impacts of the anti-circumvention investigation. In addition to completing the general survey above, those with information about specific large-scale solar projects can use a map tool to find their projects and submit basic information about the impacts from the Auxin petition.

#1 Complete the Survey

#2 Provide Project Data

Large projects
1. Find your projects on the map
2. Confirm it’s the right project by looking at details in popup window

3. Click on link to open a survey with details shown prefilled
Prefilled data allows alignment with other databases.
Submit Data on Impacts from the Auxin Tariff Petition

For impacts to solar projects 1 megawatt (MW) and above:

Project-level data for large projects will be extremely valuable to show policymakers detailed and concrete impacts of the anti-circumvention investigation. All these projects must report delays and cancellations to the Energy Information Administration (EIA) via monthly Form 860m filings. While the data becomes public 2+ months after the forms are filed, we need the data ASAP to fight this existential threat. In addition to completing the general survey above, we have two asks for you:

1. Submit data on impacts to the large solar projects in your portfolio

If you don’t see your project on the map

Submit Project-level Data Manually
Ensure EIA Receives Accurate Project Updates

- The Energy Information Administration (EIA) is the source of official government statistics on energy.
- Projects larger than 1 MWac submit EIA form 860 annually and EIA form 860m monthly if they are within 12 months of beginning construction.
- Find the person responsible for submitting these forms for your projects (often developer or owner).
  - Make sure the person is fully aware of supply chain challenges ASAP.
  - Forms typically submitted within two weeks of the close of a month.
- This data is on a two-month delay so make sure March 2022 submissions reflect the current situation.
- Still complete the SEIA survey so we can get the data faster!