

# 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

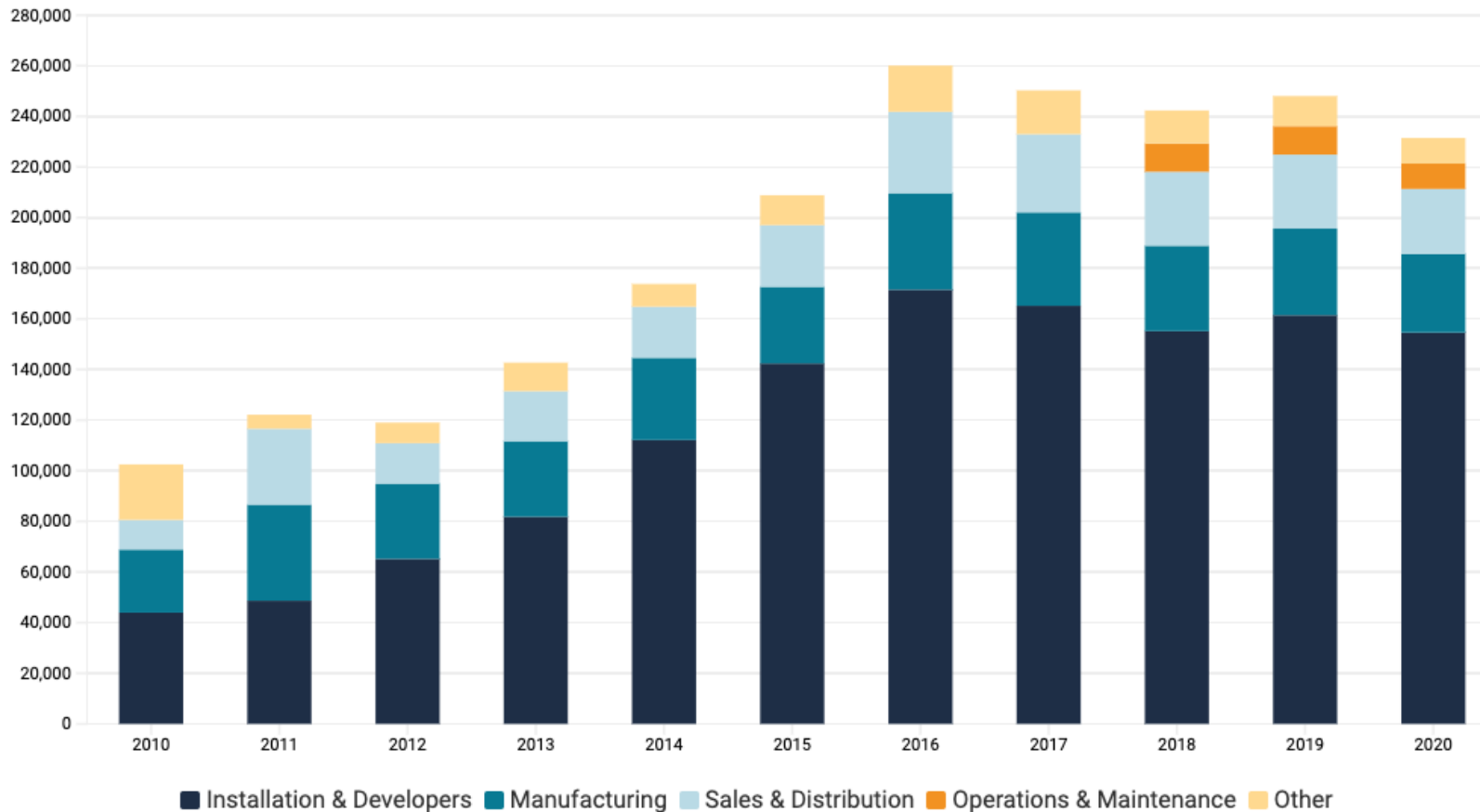
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April 26, 2022



# Background: Solar is an Economic Engine

## U.S. Solar Workers by Job Category



- 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

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- 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

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## 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 31<sup>st</sup> and April 21<sup>st</sup> 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

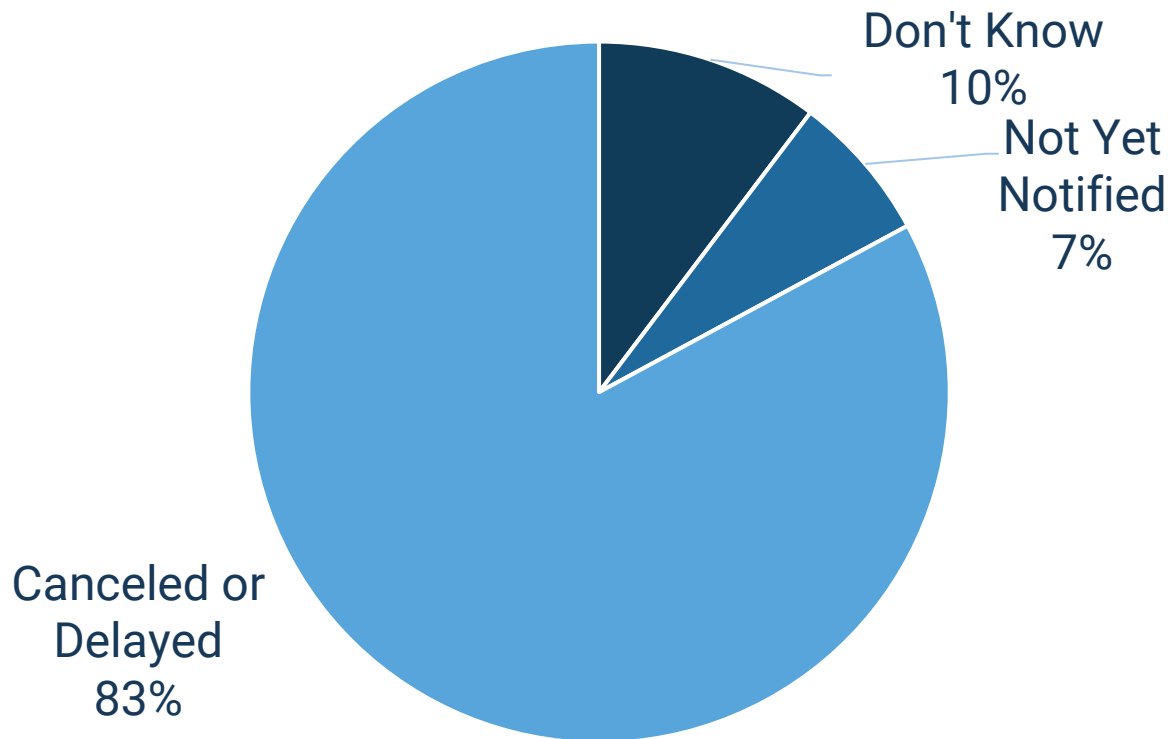
Data as of 4/21/2022

*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?

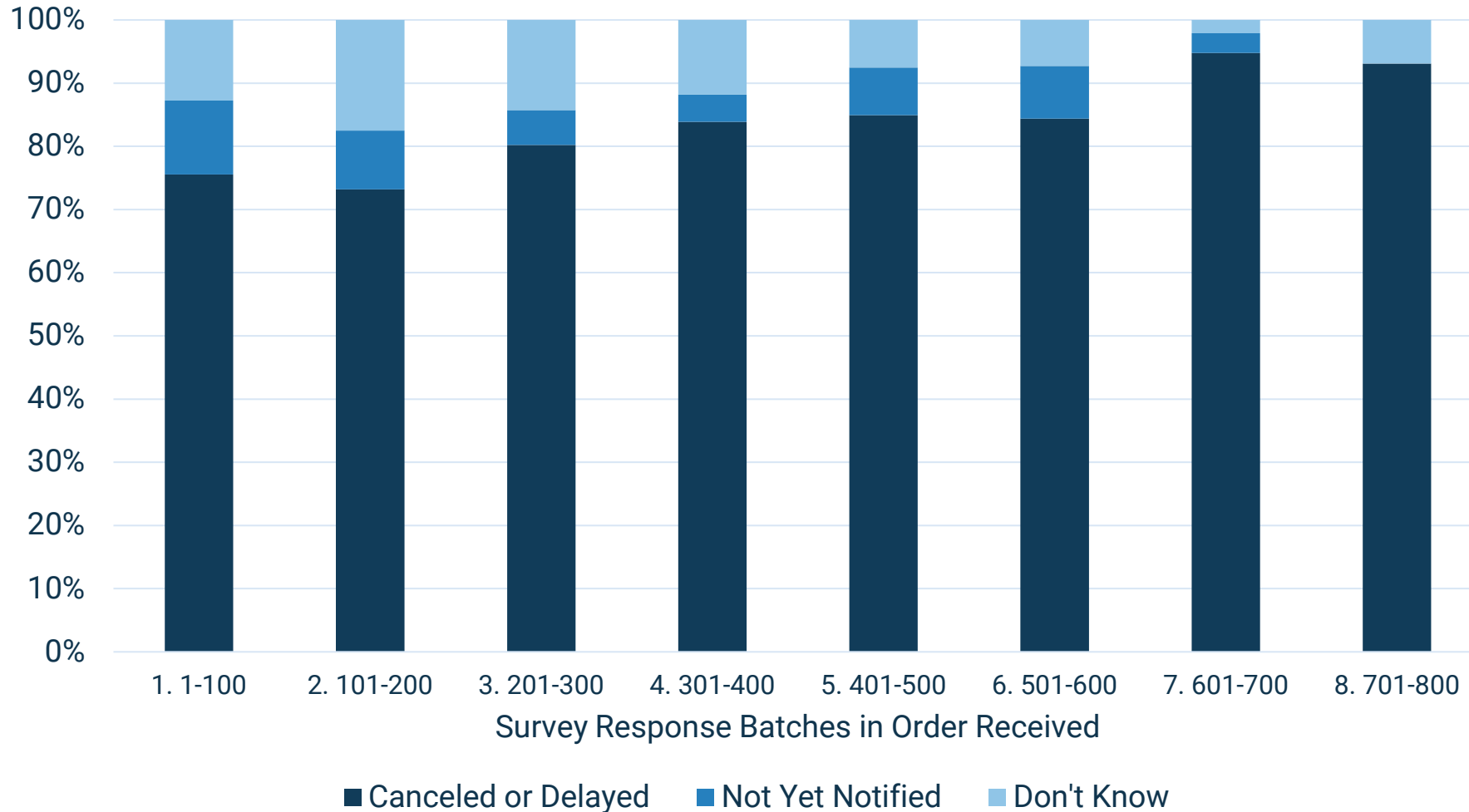
## Current Module Supply Status



**Four-fifths**

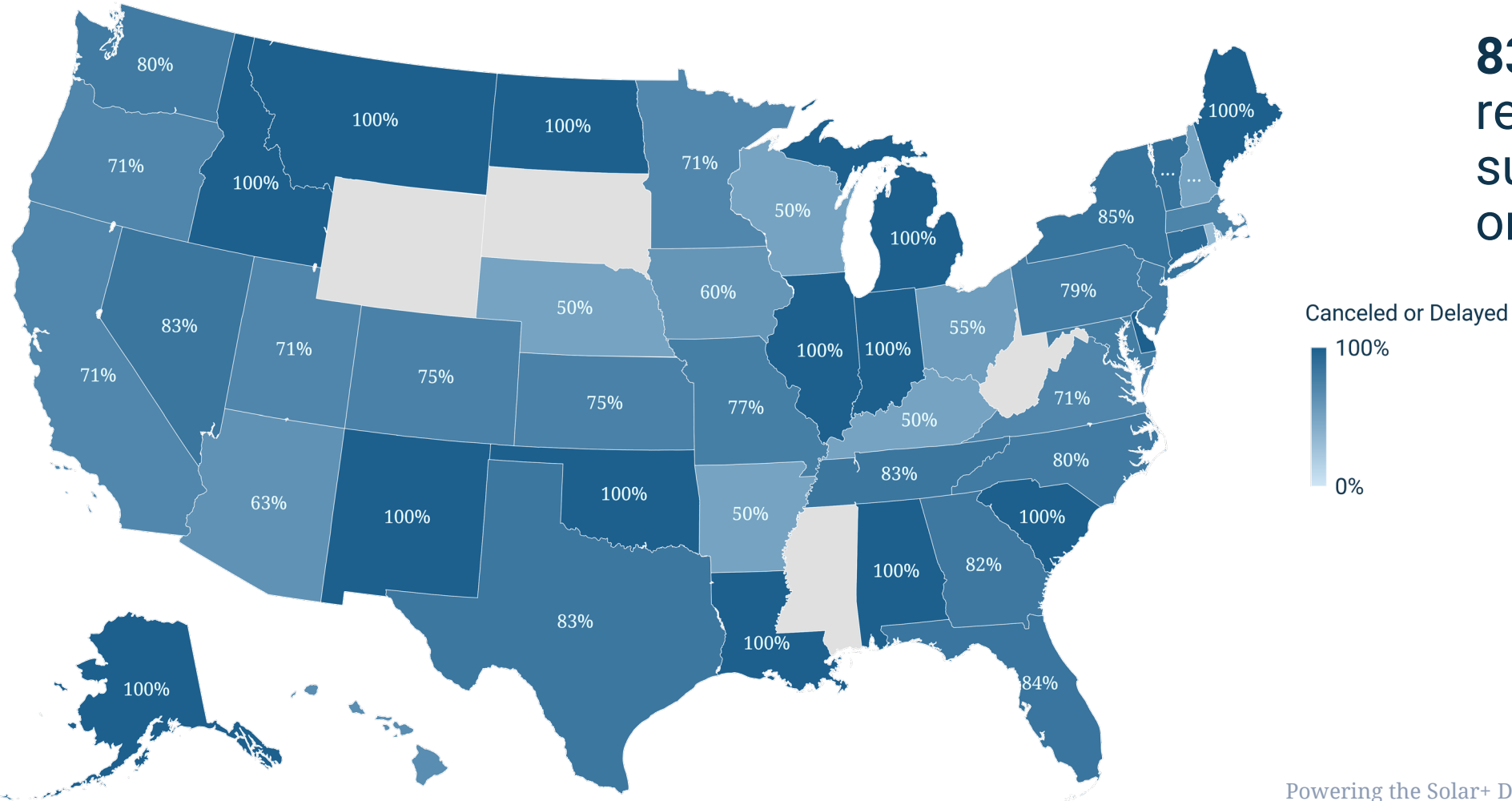
of respondents that purchase or use modules report canceled or delayed module supply.

# If your company purchases or uses PV modules, have you received indication that your expected module supply has been delayed or canceled?



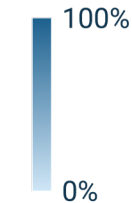
Reported  
cancellations  
and delays  
**increasing**  
over time

# Percent of Respondents Reporting Delayed or Canceled Module Supply



**83% of respondents report module supply cancellation or delay**

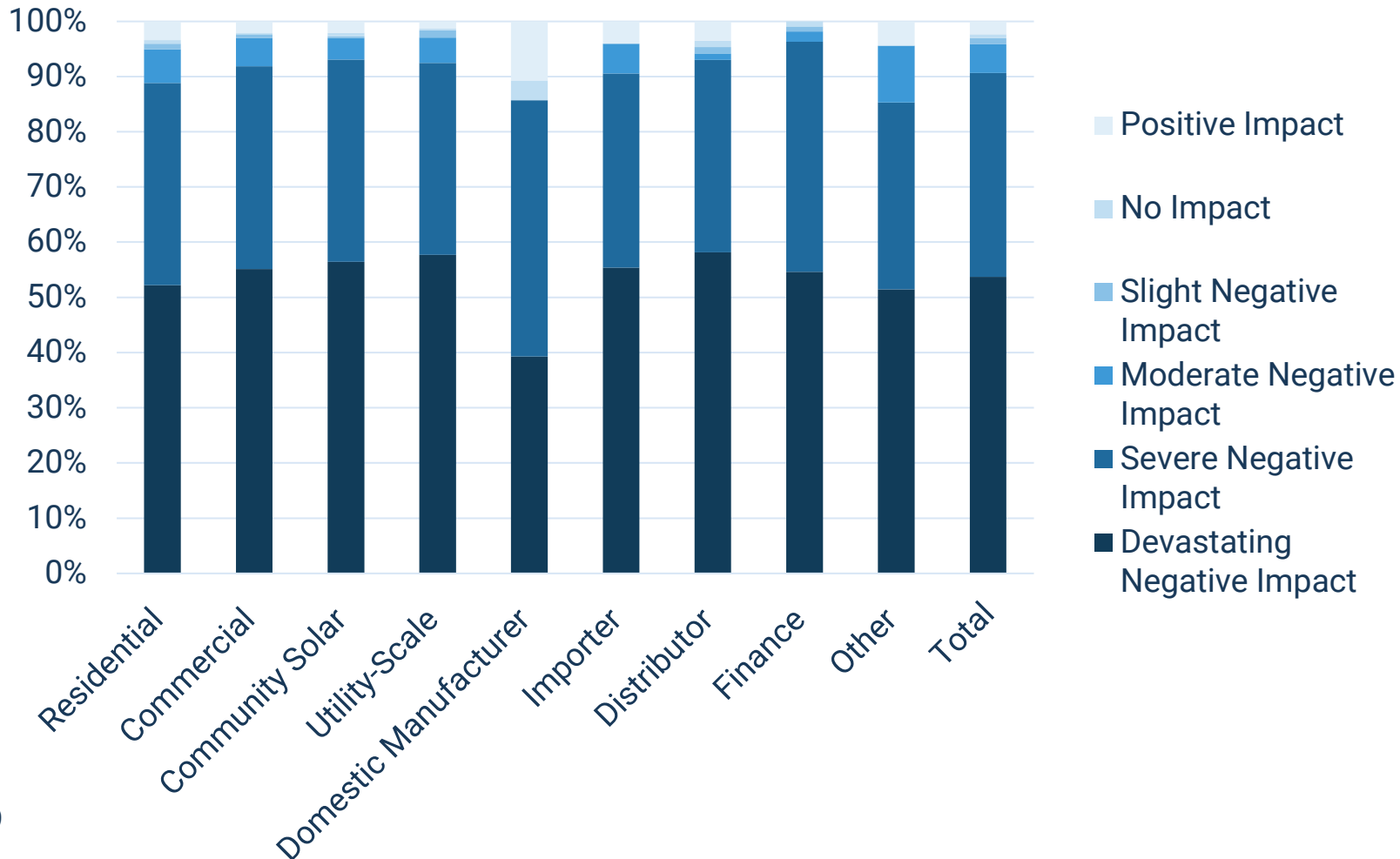
Canceled or Delayed





# How do you expect this investigation into imports from Cambodia, Malaysia, Thailand and Vietnam to impact your U.S. business in 2022?

Expected Impact on Solar Business by Company Type



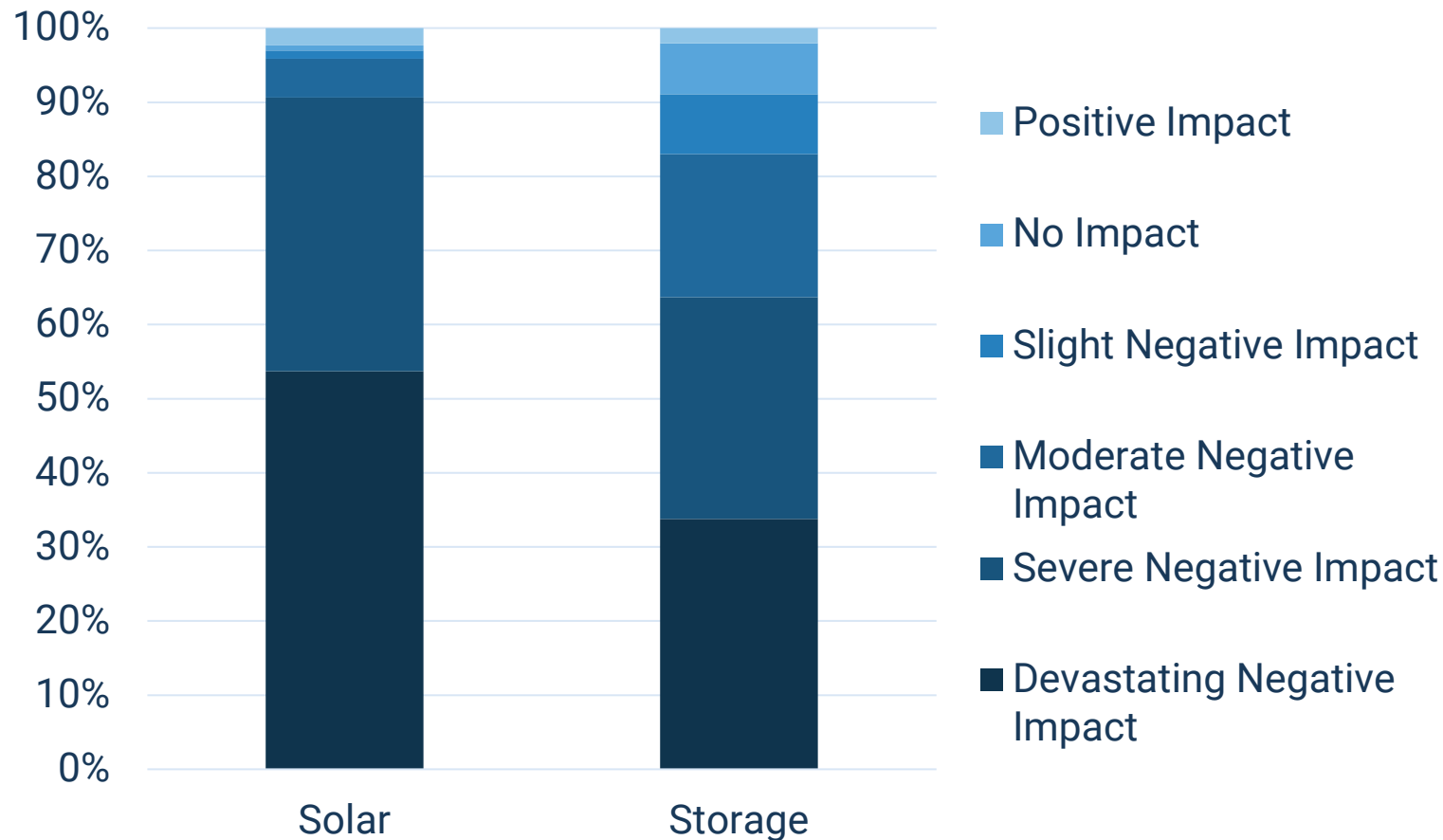
Companies expect damage across the value chain.

**80% of domestic manufacturers**

responding to the survey expect severe or devastating impacts.

# How do you expect this investigation into imports from Cambodia, Malaysia, Thailand and Vietnam to impact your U.S. business in 2022?

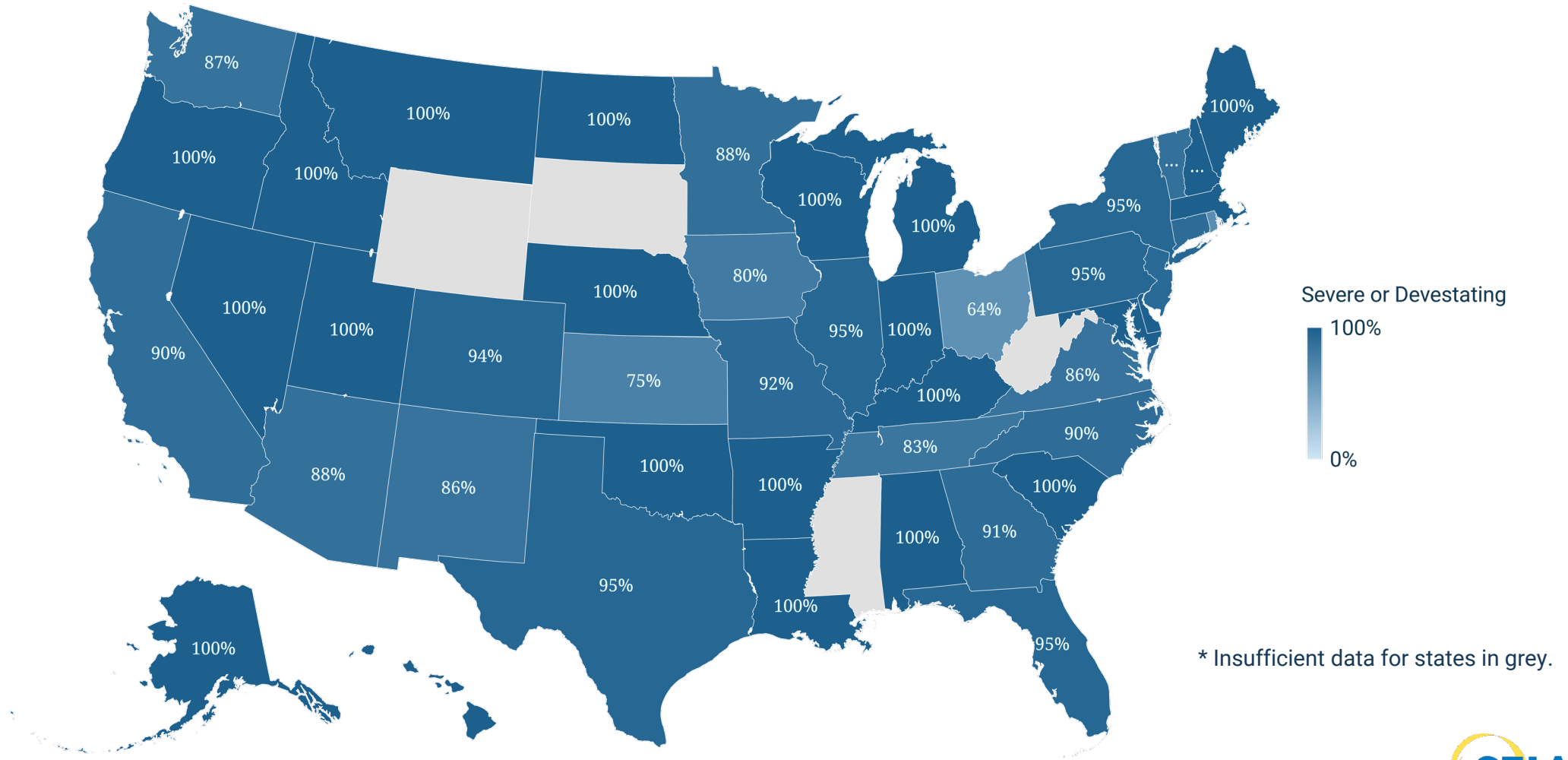
Auxin Petition Impact on U.S. Solar and Storage Industries



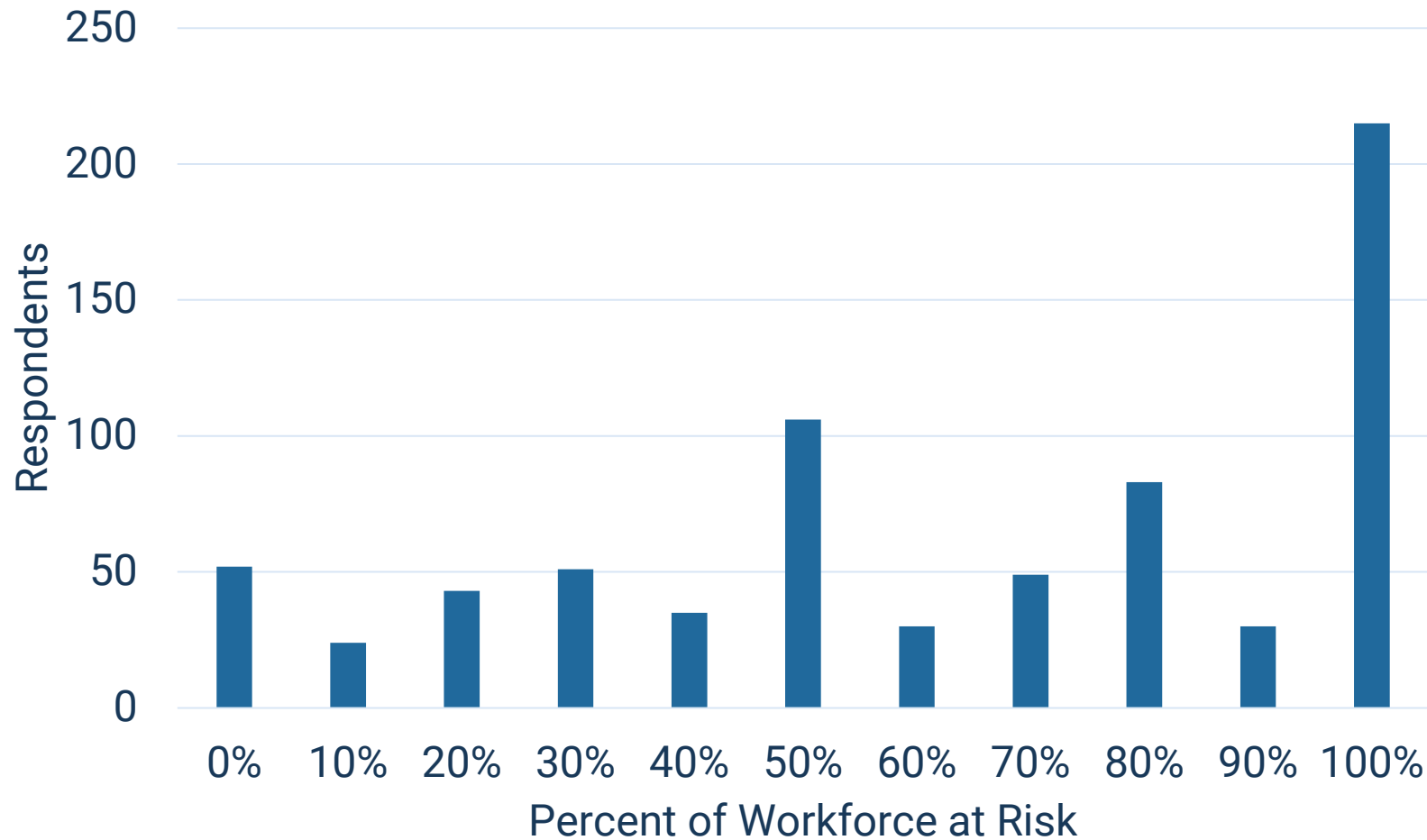
## Massive impact on solar *and* energy storage industries

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.

# Percent reporting “severe” or “devastating” negative impact to solar business from Department of Commerce action on solar imports

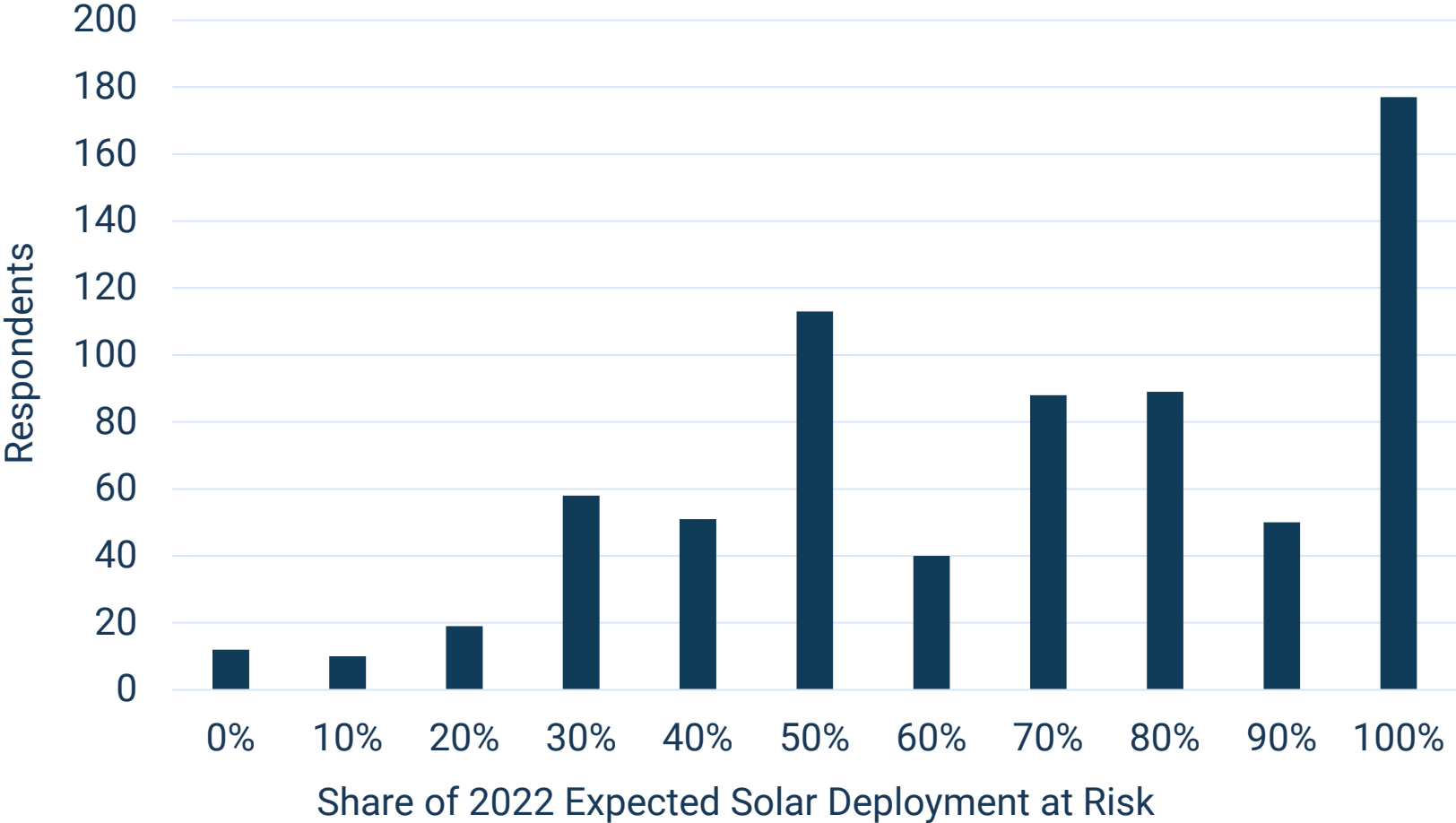


# What percent of your company's U.S. solar and storage workforce is at risk due to this tariff investigation?



- 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:

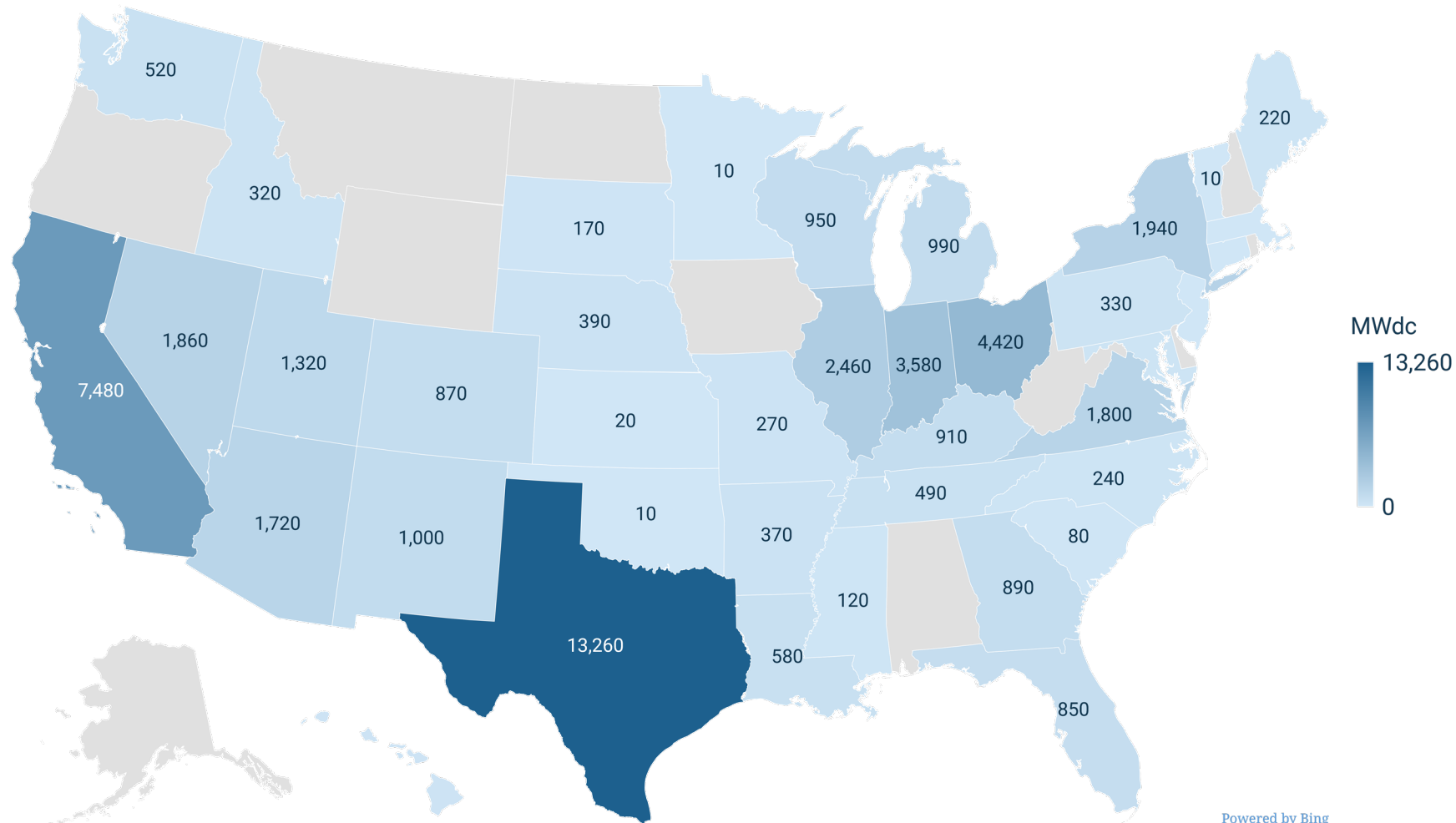
- Delays
- **Layoffs**
- Hiring freezes
- **Massive cost increases** (often untenable)
- **Project cancelations**
- **Projects with complete racking but no modules**
- Projects with only some of the modules needed to finish
- **Extreme uncertainty**
- **New project development on hold**



## 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)

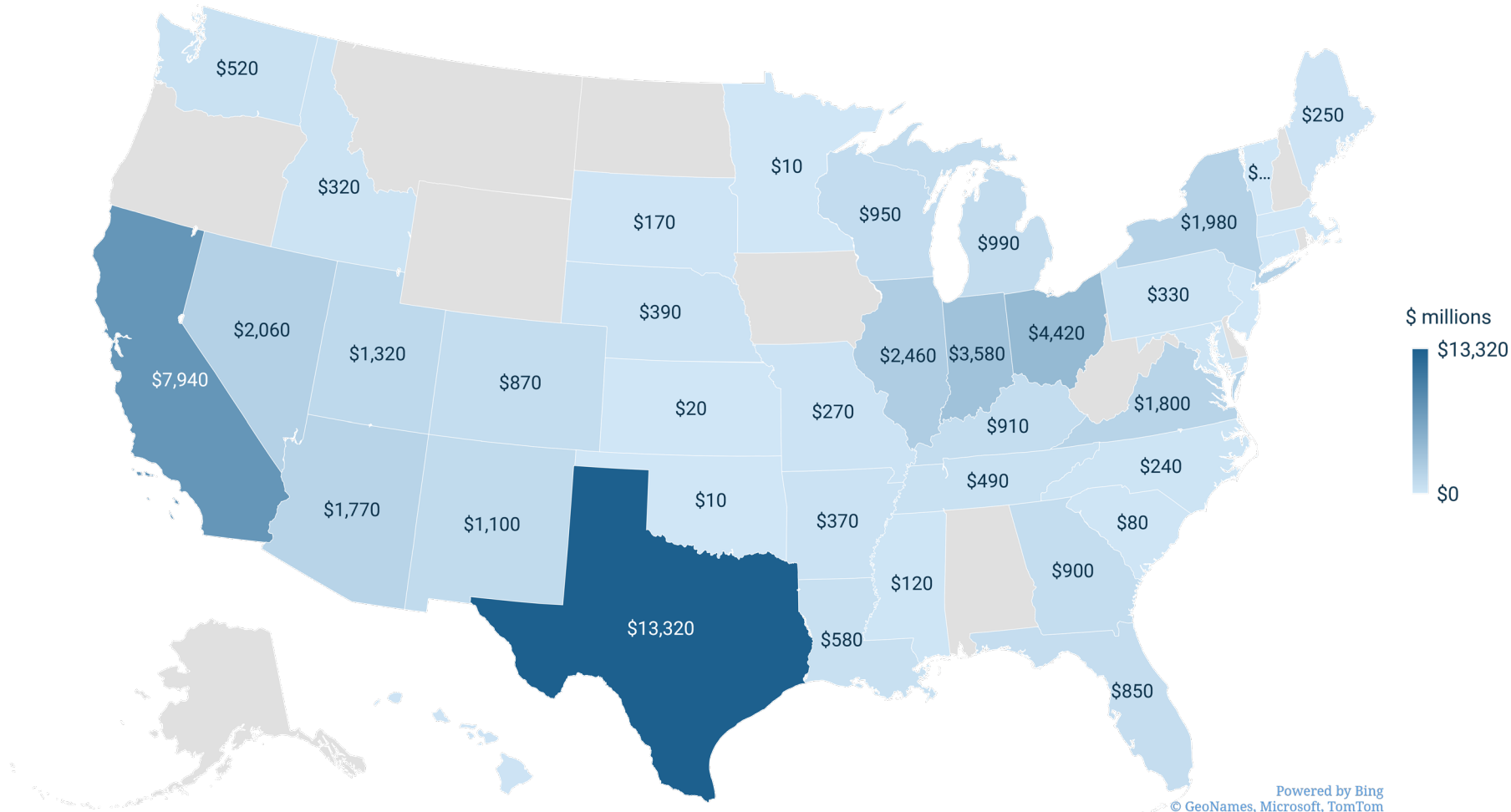


- 318 projects
- 50,800 MWdc of solar
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

\*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)

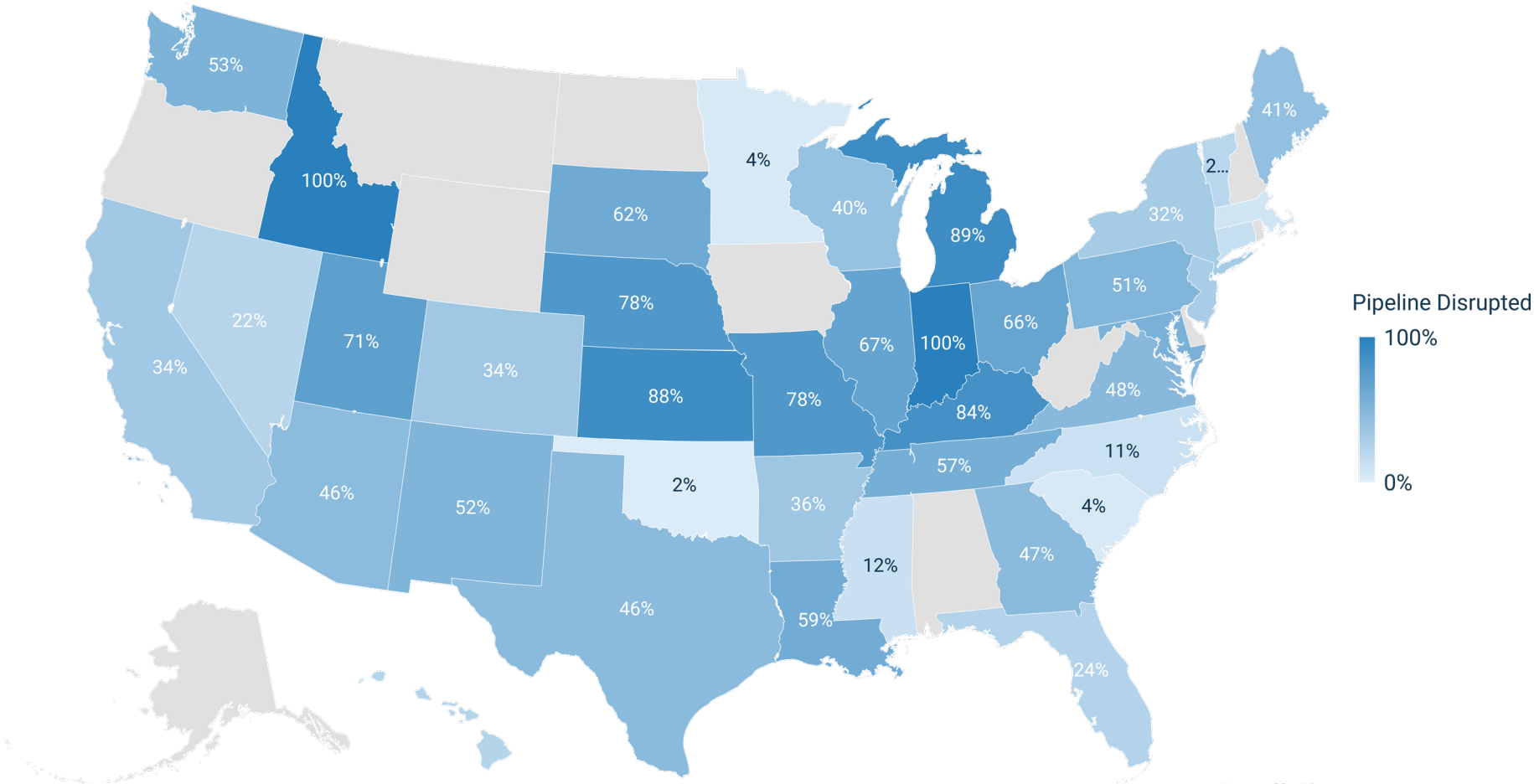


- \$52 billion utility-scale investment at risk
- 318 projects
- 50,800 MWdc of solar
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

\*State figures rounded to \$10 million to help ensure anonymity.

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# 42% of Known Utility-Scale Solar Pipeline Disrupted



- 318 projects
- 50,800 MWdc of solar
  - 122,000 MWdc known pipeline
- 5,800 MWh of attached battery storage
- Represents only a fraction of likely impacts.

\*State figures rounded to 10 MWdc to help ensure anonymity.

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# Deployment, Employment and Climate

# Baseline and Auxin Tariffs

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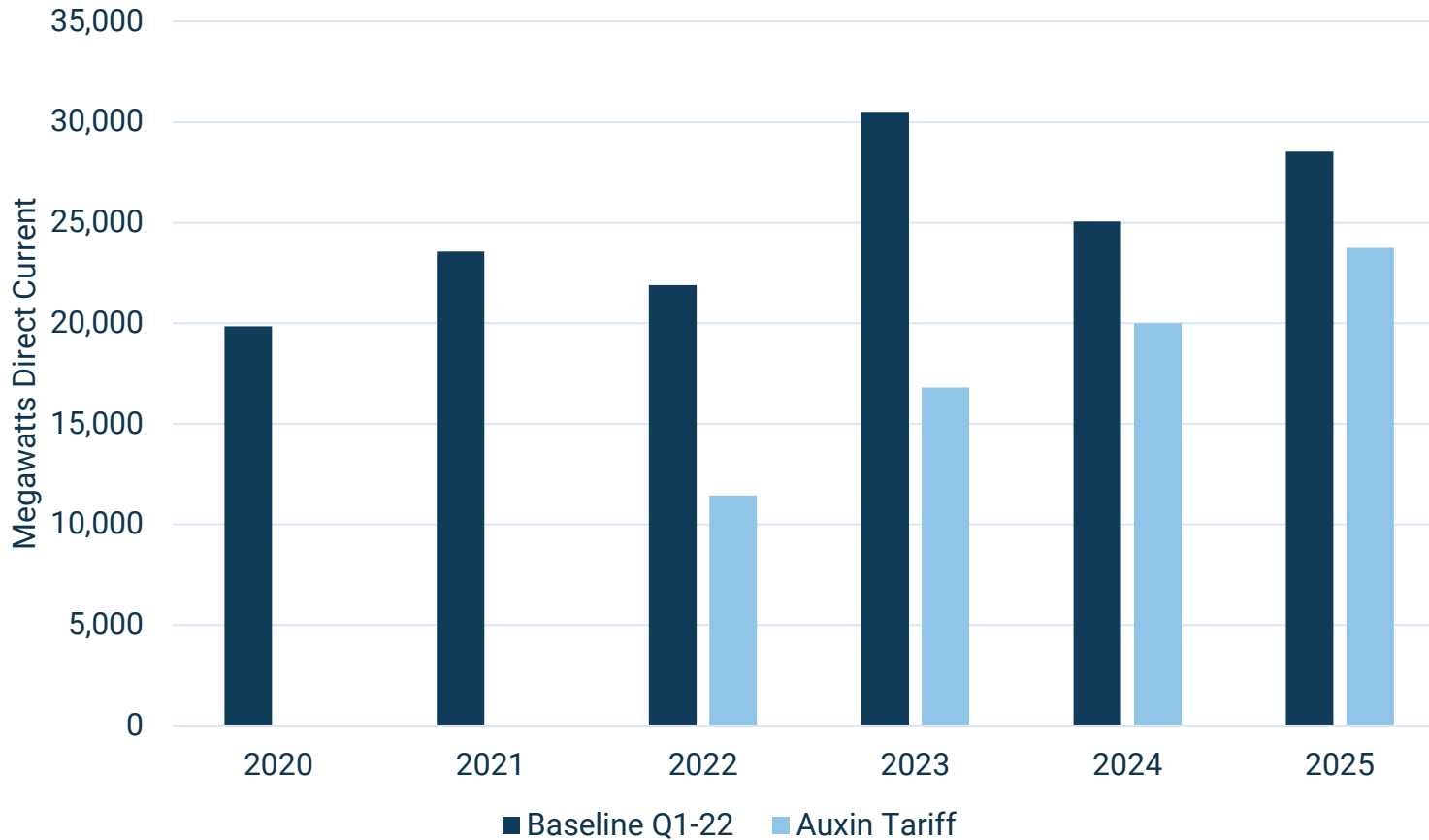
## Baseline Q1-22 Scenario

- Prior to the initiation 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 planned 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.

## Annual Solar Deployment



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

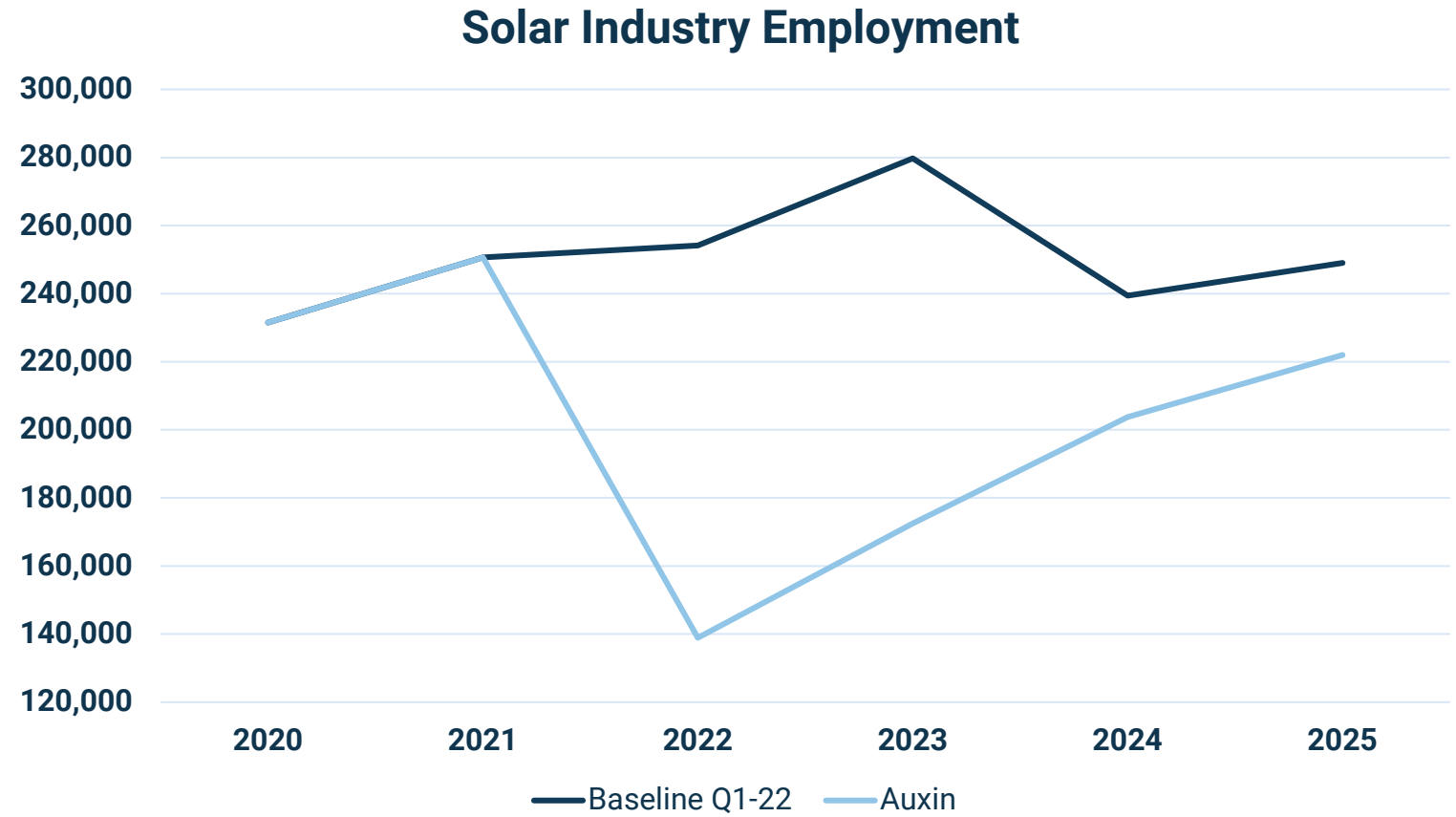
With the Auxin petition forecasted 2022 deployment will **drop 48%.**

\*Annual deployment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.

**Proceeding with the Auxin petition would lead to 34 GW of lost deployment over next 4 years**

# Solar Employment Under Auxin Tariffs

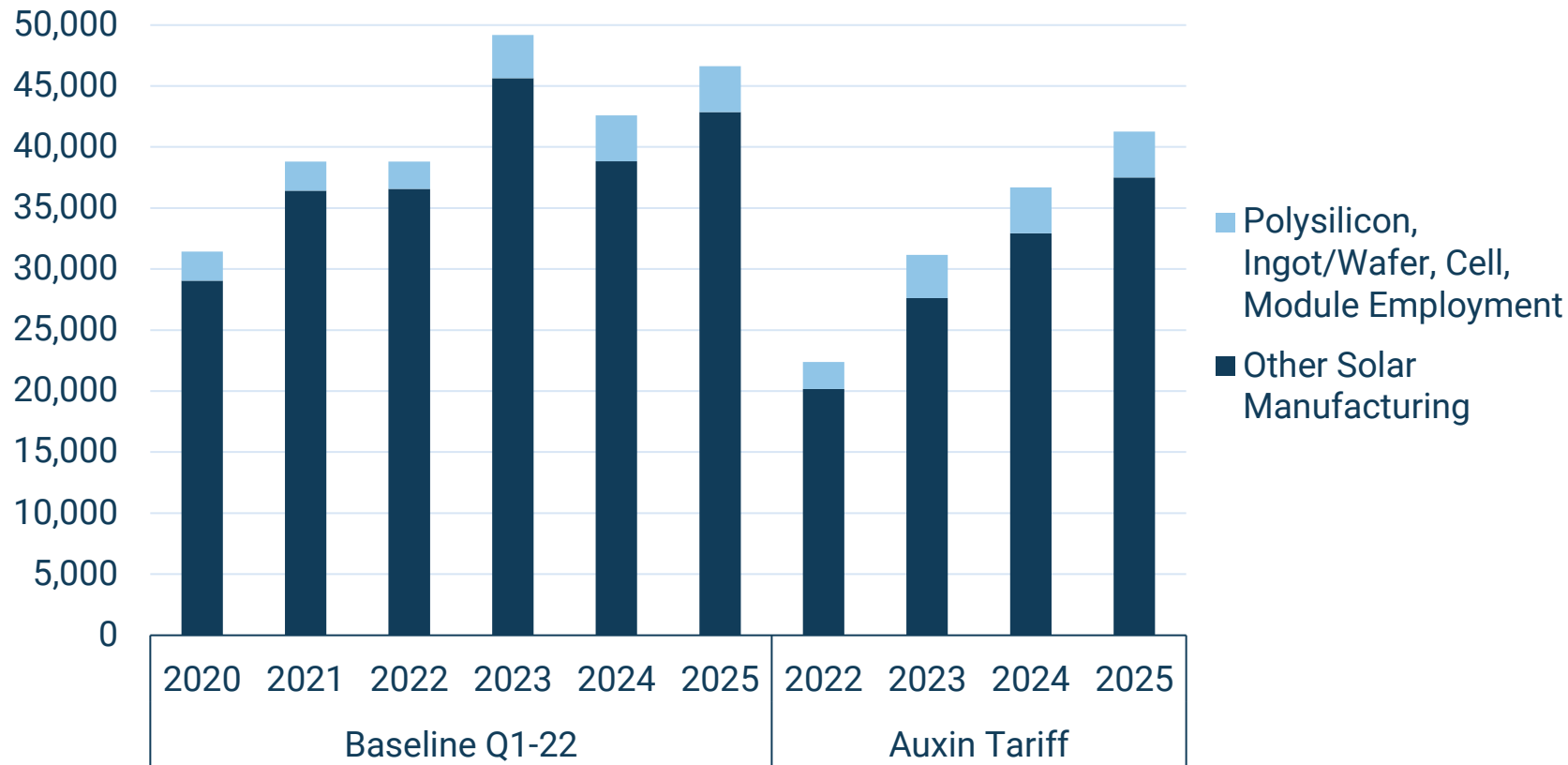
- More than **100,000 jobs** could be lost if the Auxin tariffs are imposed.
- While some of these jobs would be new jobs not added, the vast majority would be layoffs of existing workers
- **16,000–18,000 solar manufacturing jobs** would be not realized between 2022-2023 due to the imposition of tariffs, 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

## Solar Manufacturing Employment



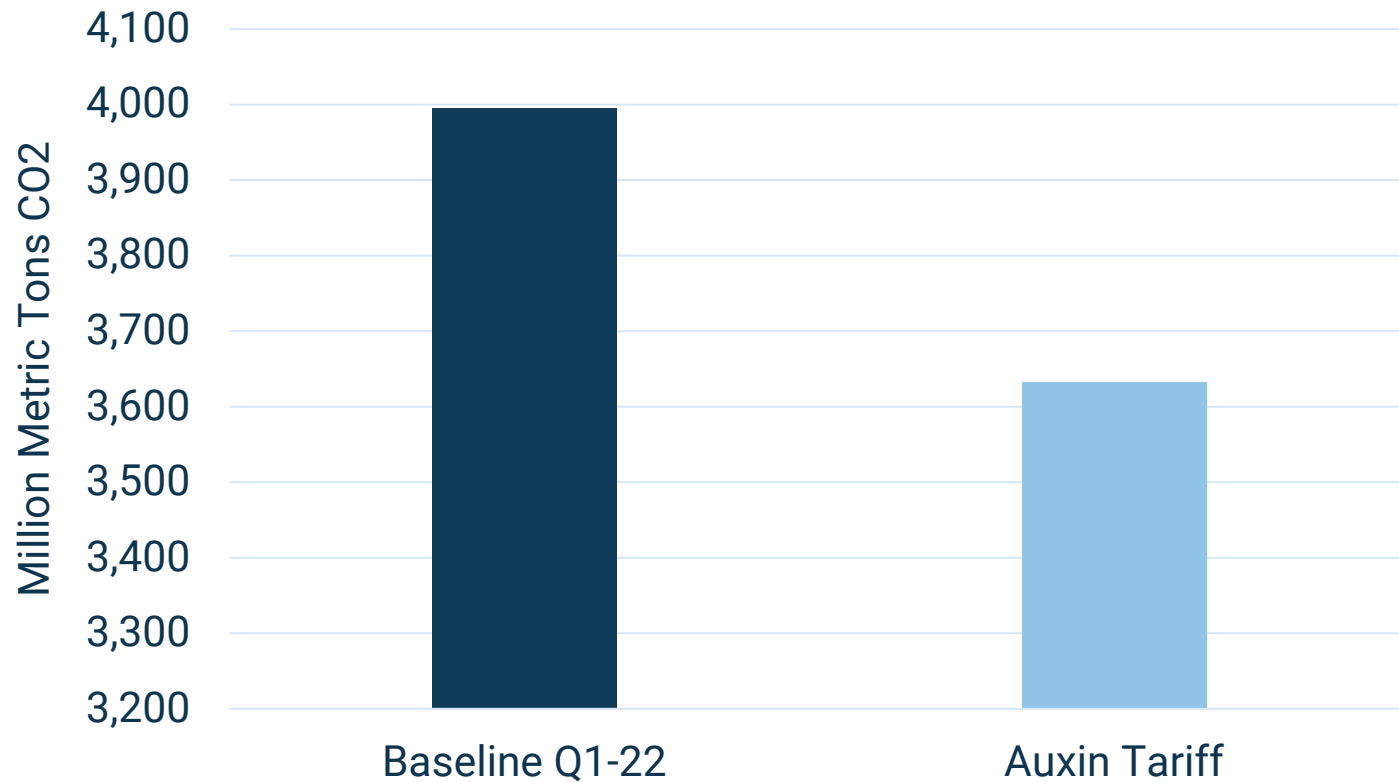
- Most solar manufacturing jobs in the U.S. are not related to module supply chain.
- Mounting, racking, trackers, and other balance of system components comprise the overwhelming majority of domestic solar manufacturing employment.

\*Employment was expected to drop in 2024 in the baseline scenario due to expiration of the federal solar investment tax credit.

# Proceeding with the Aixin petition will mean an increase of 364 million metric tons of CO<sub>2</sub>



2020-2035 CO<sub>2</sub> Emissions Avoided by Solar



364 million metric tons of CO<sub>2</sub> emissions is equivalent to the annual emissions of **97 coal plants**

The difference between the Aixin Scenario and Biden goal is equivalent to **two full years of electricity-sector emissions**

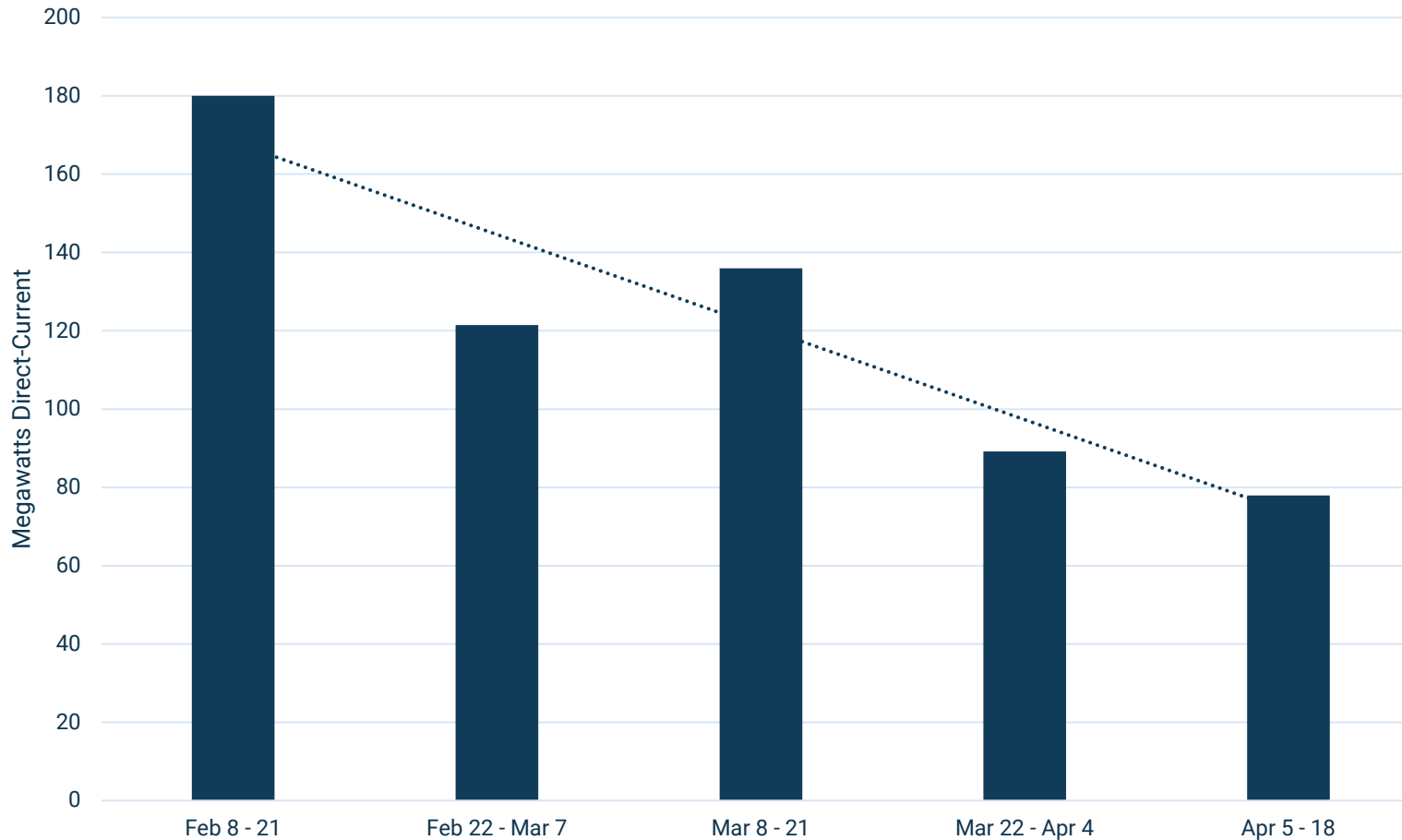




# Additional Background

# U.S. Panel Production Threatened by Falling Cell Imports

## Weekly Crystalline Silicon Solar Cell Imports



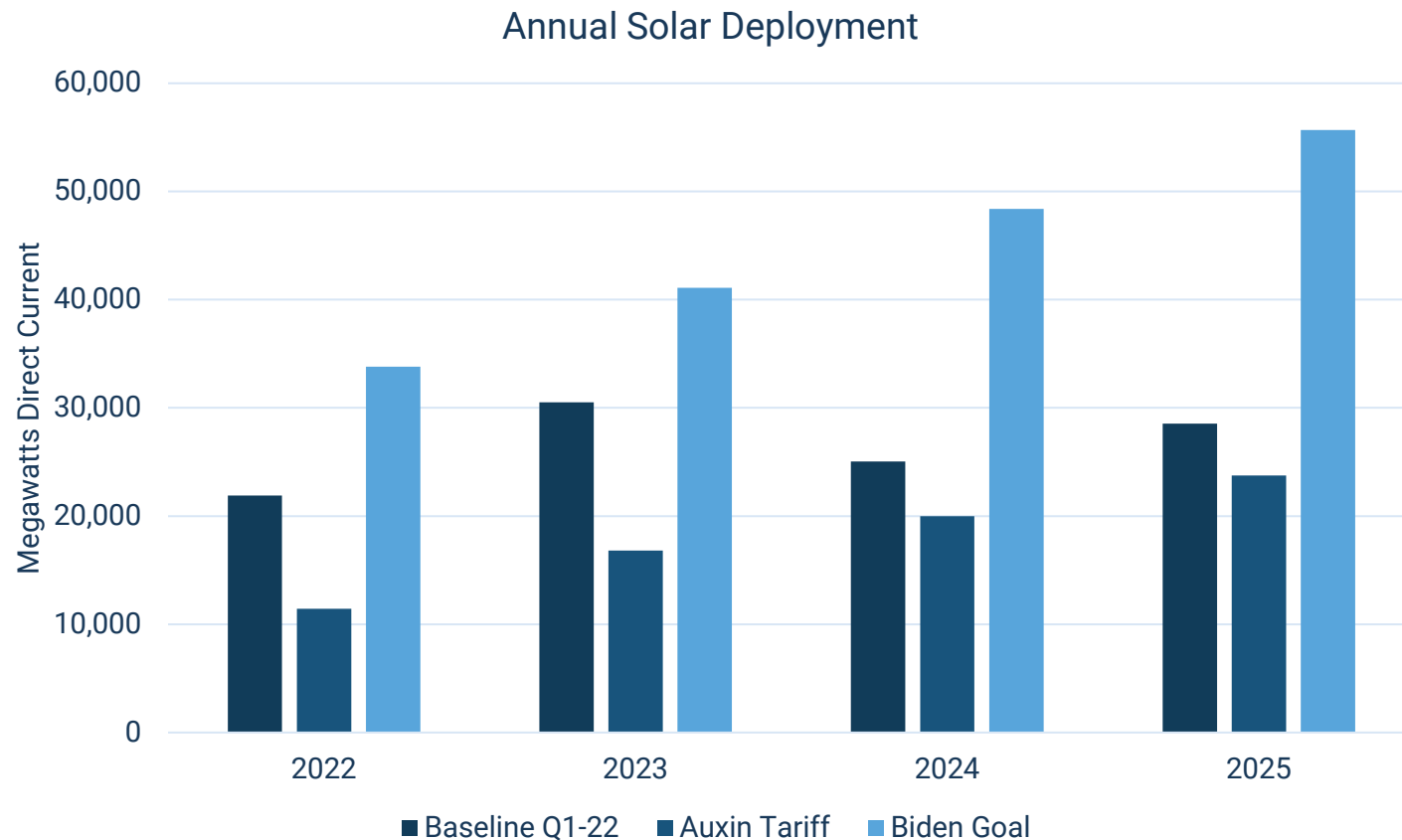
*U.S. Customs and Border Protection (Corrected)*

- 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 7<sup>th</sup> to 42 MW on April 18<sup>th</sup>.
- This is despite a cell quota that doubled from 2.5 GW in 2021 to 5 GW this year.

# More Aggressive Growth Needed to Reach Climate Goals



## U.S. Solar Market Forecasts Under Various Policy Scenarios & 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

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- 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](https://seia.org/AuxinImpacts)

# Submit Data on Impacts from the Auxin Tariff Petition

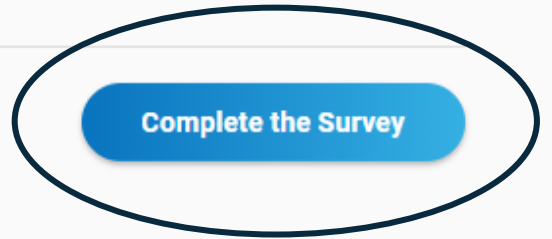
[Complete the Survey](#)



## 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.

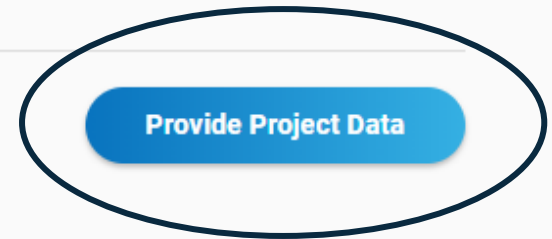
#1



## 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.

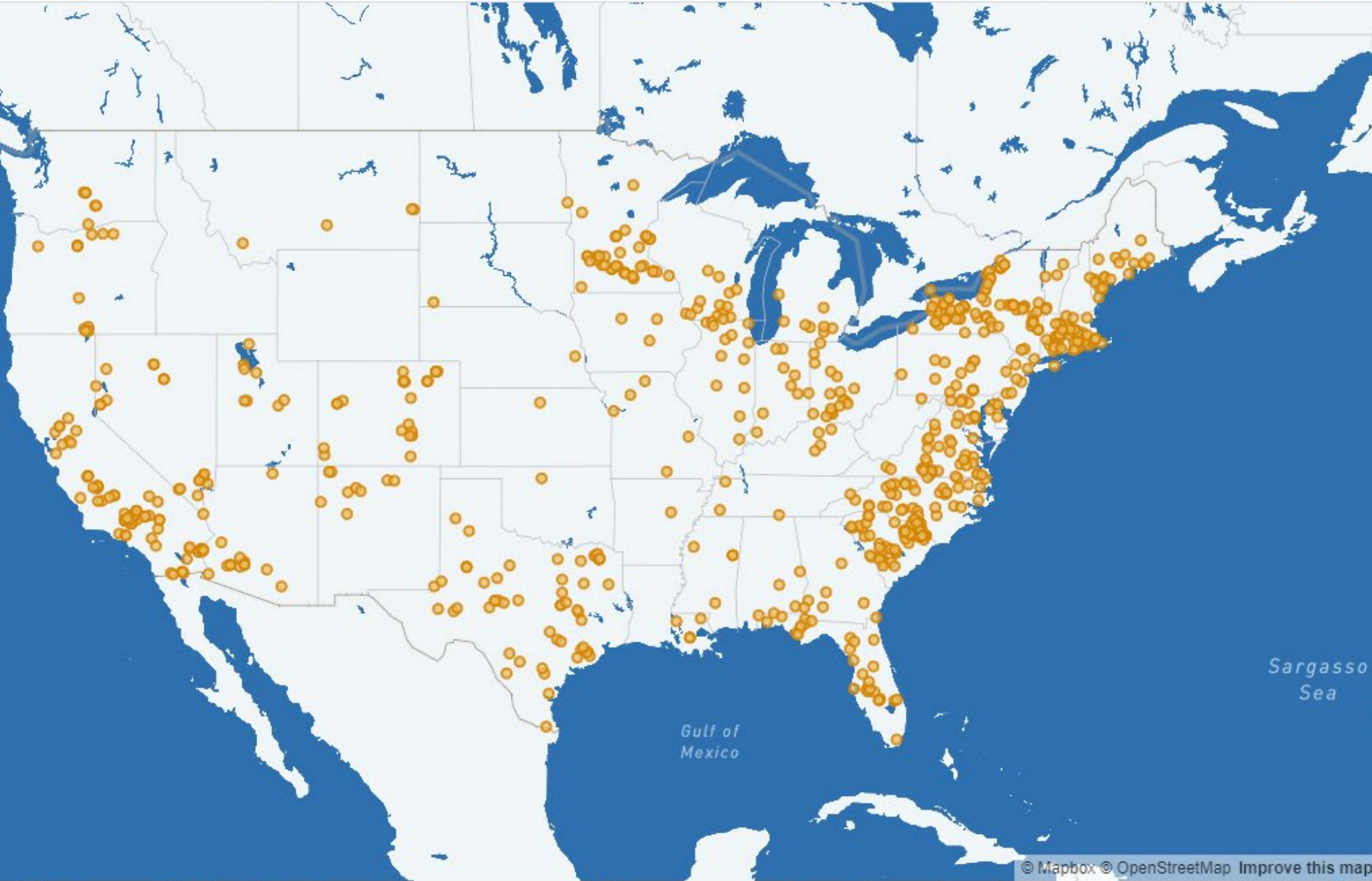
#2



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



^ Required

Project Name and project ID (if applicable). \*

Note this information will be auto-populated if you opened this survey from the survey map.

Angel Fire Energy Facility (64695)

Project State \*

Note this information will be auto-populated if you opened this survey from the survey map.

NM

Project County

Note this information will be auto-populated if you opened this survey from the survey map.

Colfax

Project Size Solar (MWac) \*

Prefilled data allows alignment with other databases



# Submit Data on Impacts from the Auxin Tariff Petition



[Complete the Survey](#)

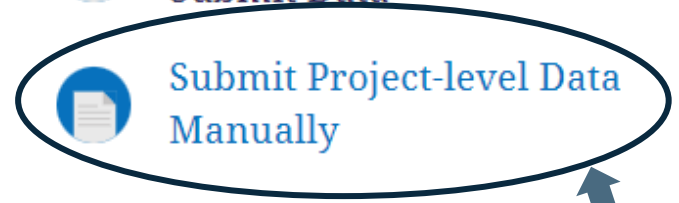
## For impacts to solar projects 1 megawatt (MW) and above:

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

## Submit Project-level Data

-  [Find Your Project & Submit Data](#)
-  [Submit Project-level Data Manually](#)



**If you don't see your project on the map**

# Ensure EIA Receives Accurate Project Updates

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- 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!

