Leveling Up Solar Manufacturing: What You Need to Know About Treasury's New Final Rules Under Sections 45X and 48D

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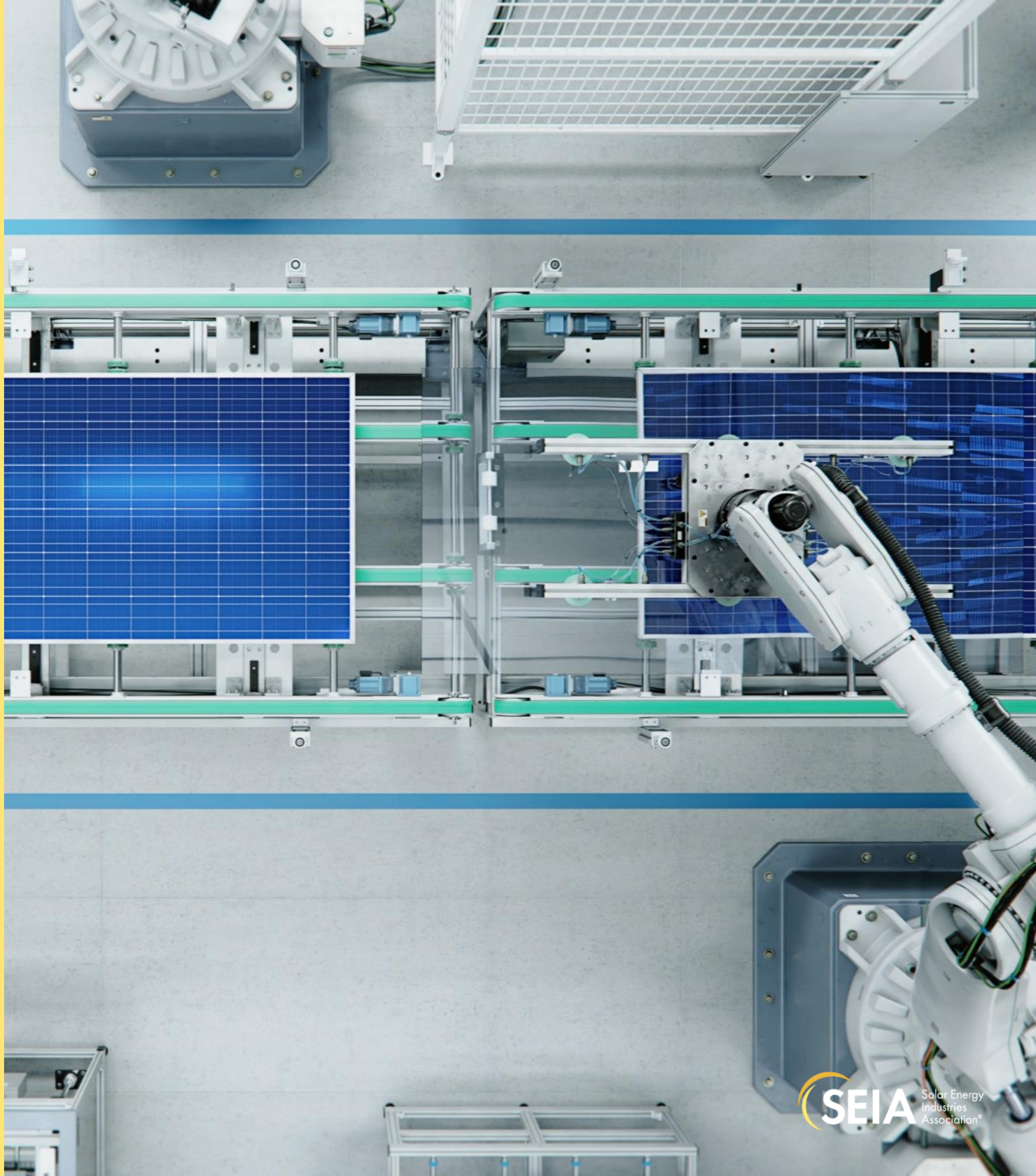
Presentation Overview

- Final 45X rules
- Final 48D rules
- Congressional update
- Supply chain update

Congressional Update

- **SEIA Calls for Ten-fold Increase in American Solar Manufacturing Capacity – 50GW by 2030**
  https://seia.org/news/seia-calls-ten-fold-increase-american-solar-manufacturing-capacity-50gw-2030/
- **U.S. Solar Manufacturing Poised for Boom if Energy Tax Incentives Move Ahead**
  https://seia.org/blog/us-solar-manufacturing-poised-boom-if-energy-tax-incentives-move-ahead/
- **Key Tax Mechanisms**
  48 and 25D
  45X
  48C
  48D



Section 45X Final Rules

- Published in the Federal Register **October 28, 2024**, and effective **December 27, 2024**

- Production tax credits for **eligible components**
    - Modules, cells, wafers, polysilicon, and backsheets
    - Torque tubes and structural fasteners
    - Inverters and MLPEs
    - Battery electrode materials, cells, and modules
    - Critical minerals
    - Wind energy components

- Credit phase out: **75%** in 2030, **50%** in 2031, **25%** in 2032, **0%** thereafter

General Provisions

- **Module assembly**: module assembly satisfies the “substantial transformation” test to be considered “produced by the taxpayer” and is not “minor assembly”
- **Warranty sales**: only one credit may be claimed with respect to the sale of an eligible component; there is no incentive to produce two eligible components related to a single sales transaction
- **Interaction of sections 48C and 45X**: manufacturing activities must be separate to claim each credit; ingot and wafer production are statutorily a single activity
- **Exports**: components are eligible regardless of whether a purchaser uses them in the United States

SEIA Solar Energy Industries Association®

Solar Components

- **Tandem cells**: bottom cells in tandem modules are eligible, and capacity is measured with the intended top cell placed between the bottom cell and the light source
- **Foreign ingots**: both an ingot and a wafer must be produced domestically to qualify for the wafer credit
- **Torque tubes**: there is no functional interdependence or integral part test that would allow components not specified in the statute to qualify
- **Structural fasteners**: a component used for any function described in the statute will be considered a structural fastener

Inverters

- **Suitability standard**: other types of inverters such as bidirectional electric vehicle inverters or utility and commercial inverters that are in practice used with battery modules can meet the existing suitability standard
- **DC optimizers**: for DC optimized inverter systems that qualify as microinverters, the inverter and DC optimizer do not need to be physically packaged together or fully interconnected and assembled at the time of sale

Critical Minerals

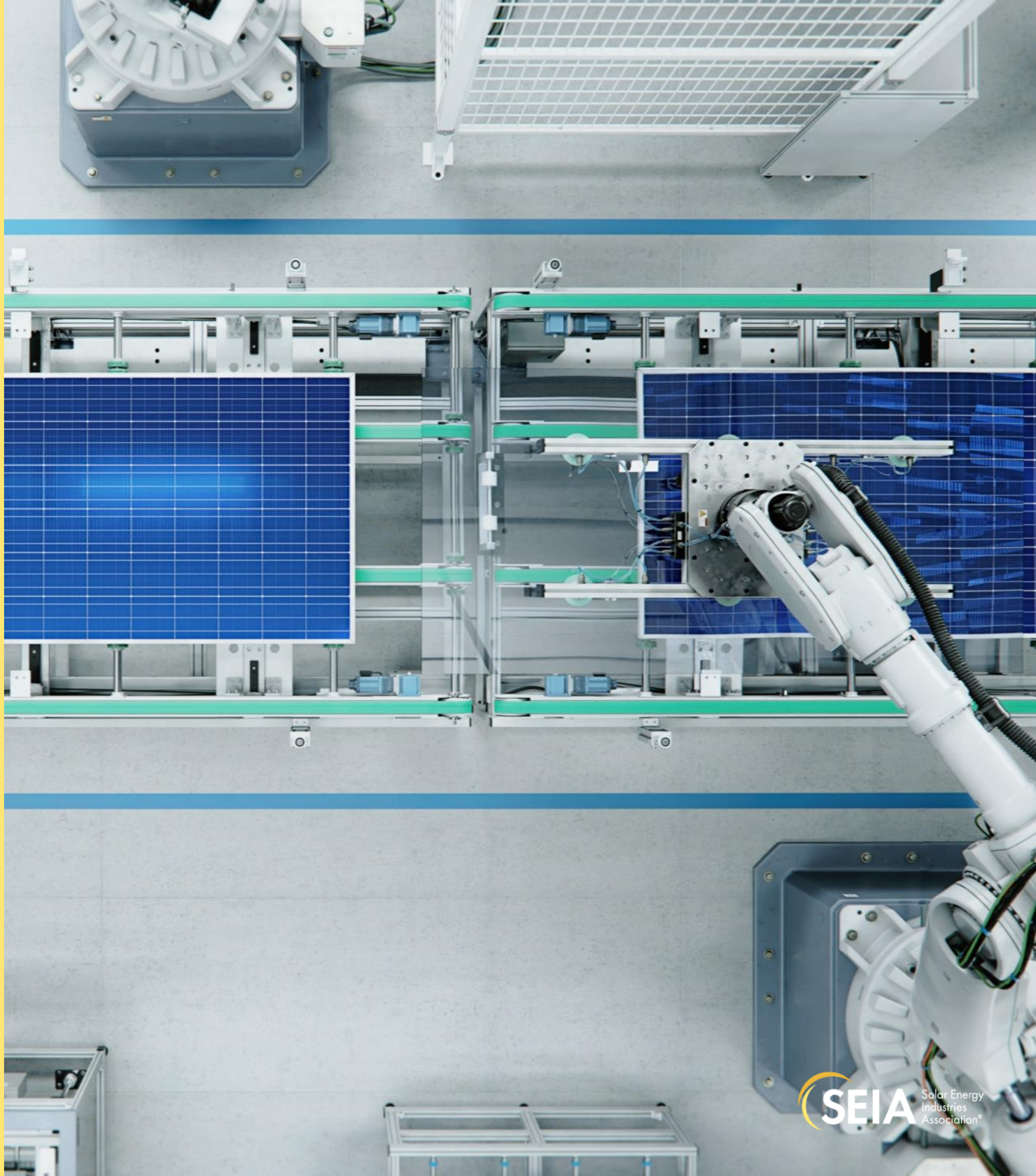
Taxpayers can include the **extraction costs** of raw materials for electrode active materials and applicable critical minerals if those costs are paid or incurred by the taxpayer

Battery Energy Storage Systems

A **battery module with no battery cells** does not require a specific storage medium or chemistry-based requirement; thus, for example, **solar thermal energy storage systems** will be considered eligible components, provided a storage medium is sold as part of an entire system

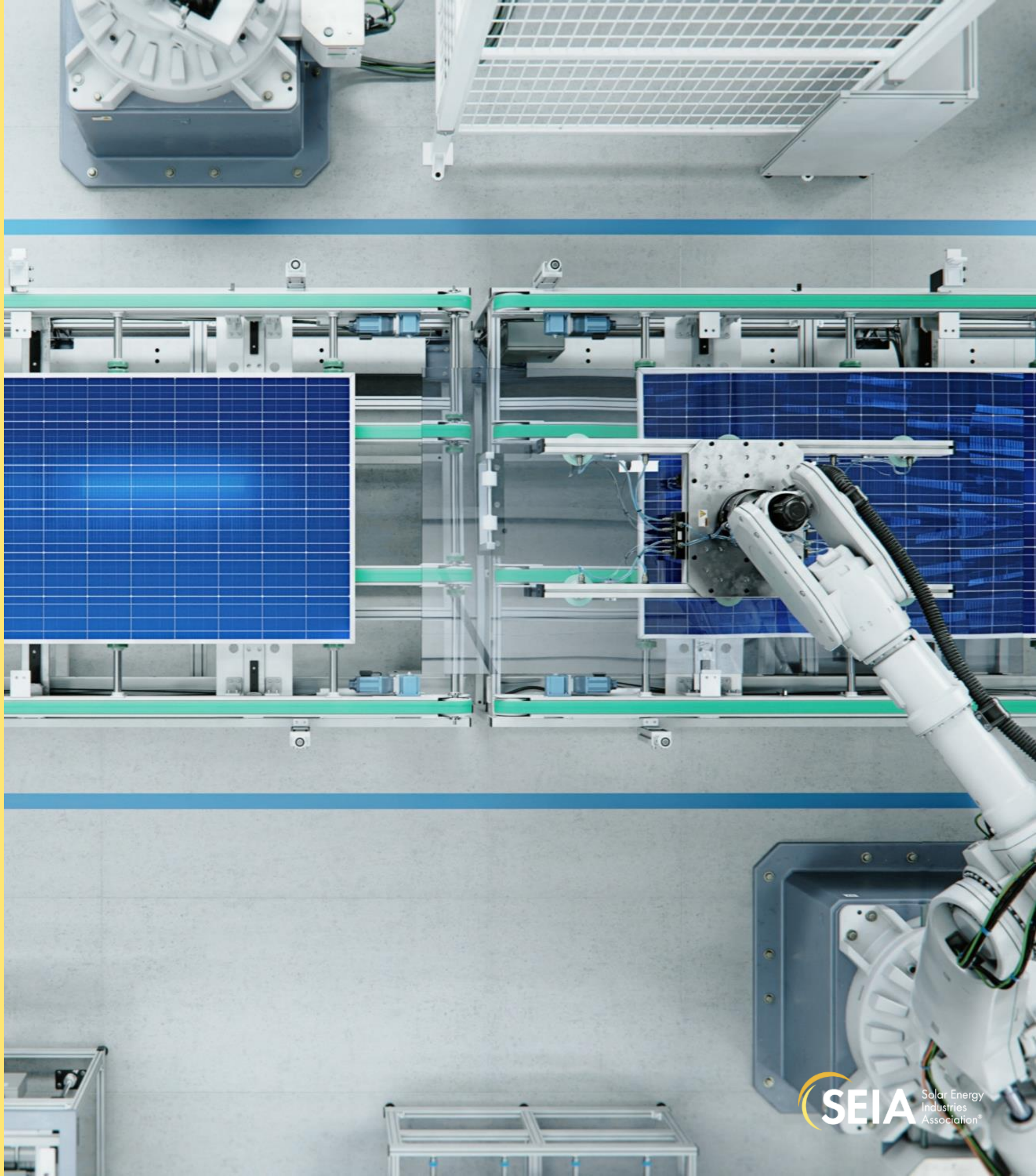
Section 48D Final Rules

- Published in the Federal Register **October 23, 2024**, and effective **December 23, 2024**
- Part of the **Chips and Science Act of 2022**
- **25% Investment Tax Credit** for facilities that produce **PV wafers and ingots**, among other semiconductor materials
- Qualified property must **begin construction by December 31, 2026**



Key Features

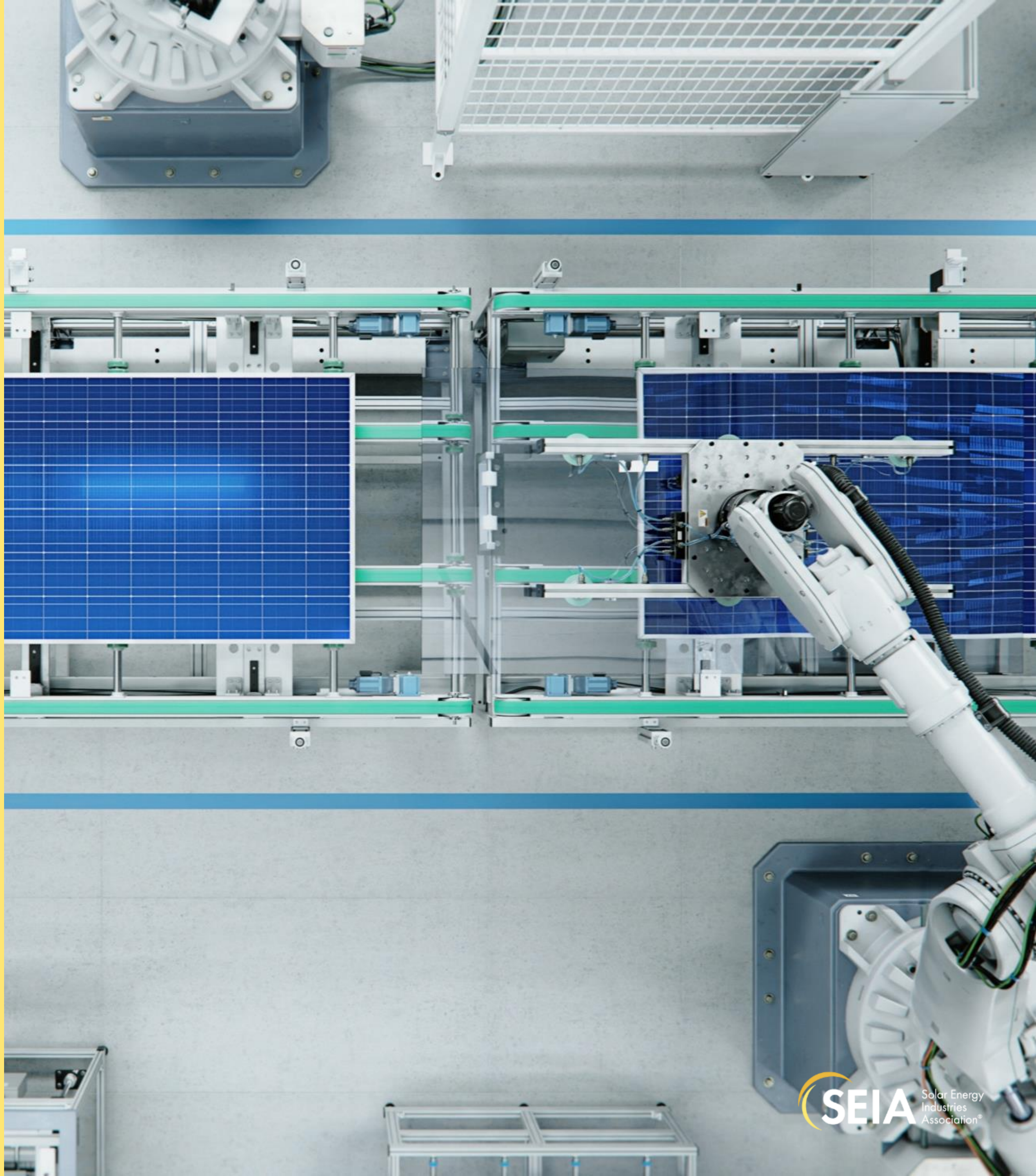
- Can be **stacked** with 45X credits
- Cannot be **transferred**, but does contain its own **elective pay** provision
- Contains statutory restrictions on **foreign entities of concern**



National Security Depends on Solar Manufacturing

- Preamble: the final rule includes ingot and wafer production “after coordination with the Department of Commerce and the Department of Defense due to specific supply chain and **national security considerations** regarding the production of solar wafers **not present in the case of other related products**.”

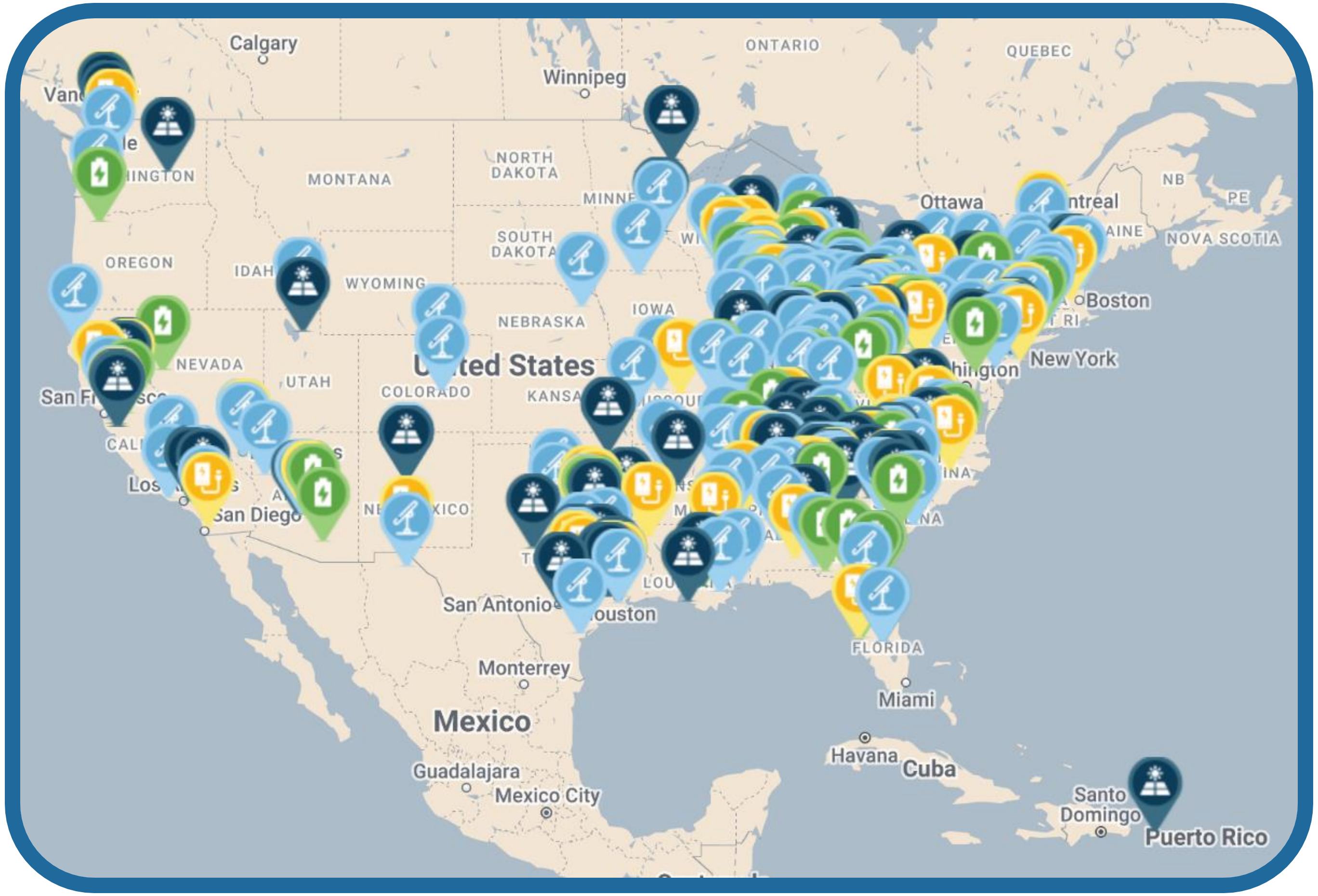
- Press release: “[A]n integral part of the suite of incentives to achieve … **economic and national security goals**”; forthcoming “additional options to further … domestic production of **the full solar supply chain, including solar wafers**.”



Looking Ahead

- Legislative action and the Congressional Review Act
- Future regulatory actions
- Along with other policies, solar manufacturing incentives have already created **40,000 new manufacturing jobs**, and **more than 100 new manufacturing facilities** are in service or under construction in **43 states**, representing over **$35 billion** in new investments

US Solar and Storage Supply Chain Map



Map Key

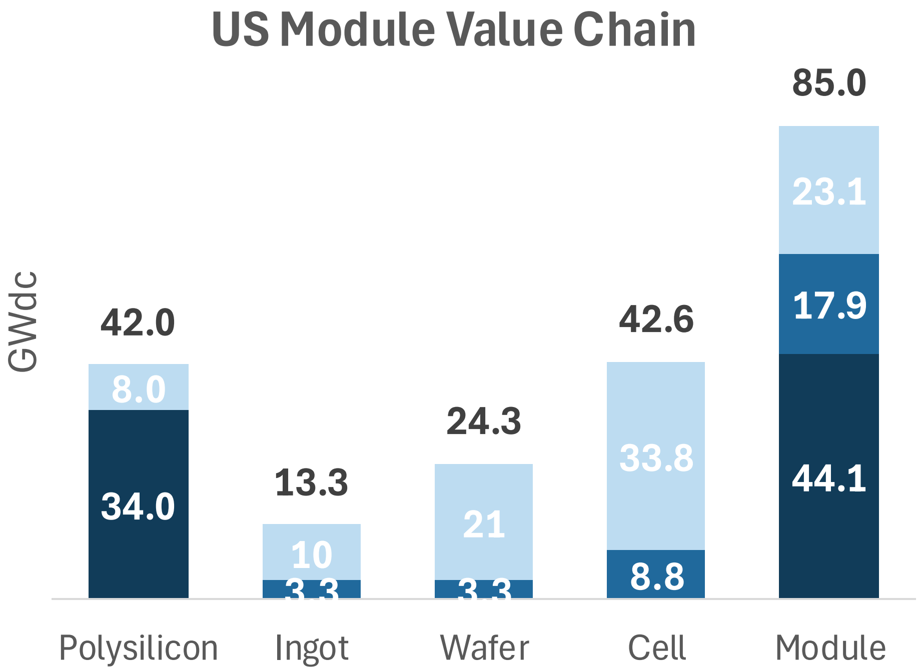
- Battery Supply Chain
- Module Supply Chain
- Mounting Systems Supply Chain
- Power Electronics and Grid Technologies Supply Chain

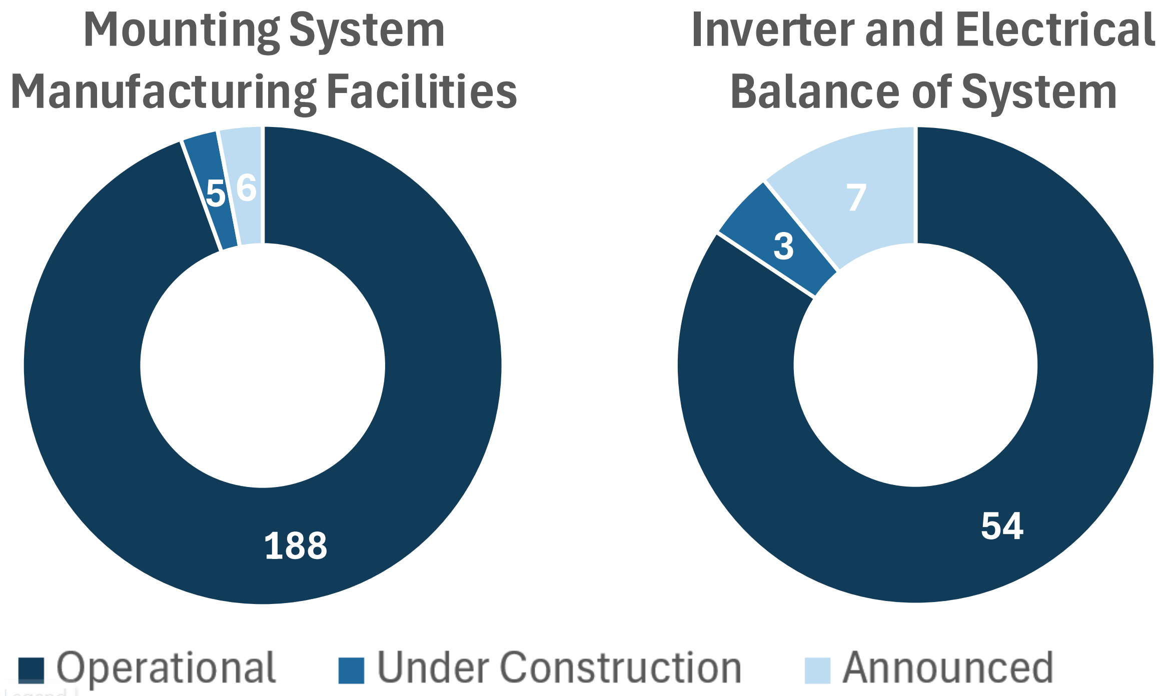
- The US solar and storage manufacturing landscape has rapidly changed
- There is more manufacturing diversity and large-scale investments than many other global hubs

Source: SEIA Supply Chain Dashboard

Current Status of US Solar Manufacturing

- Federal incentives encouraged buildout across the solar value chain
- Available supply is expected to increase further

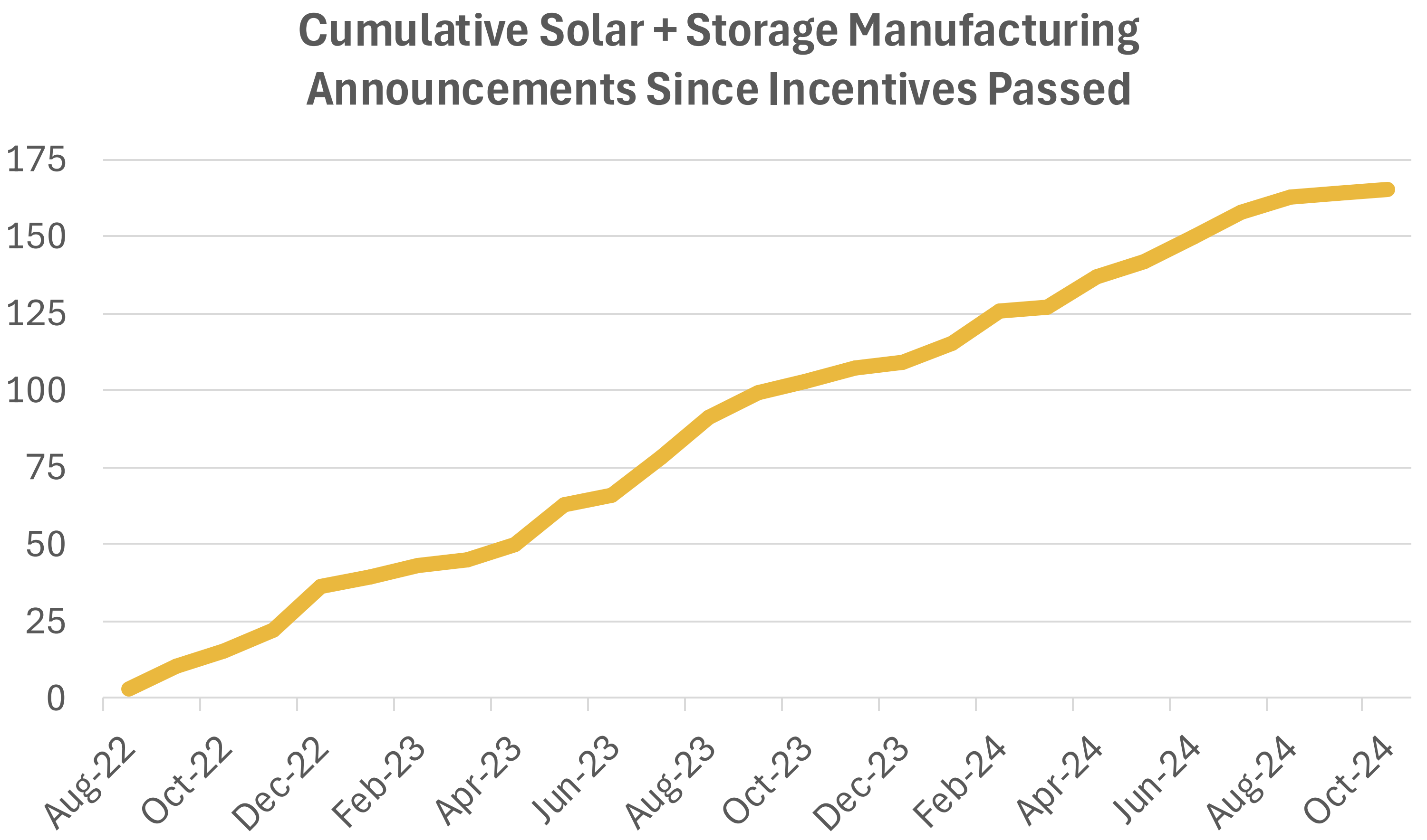




Source: [SEIA Supply Chain Dashboard]

*Announced = intent to build, not stale nor cancelled

Where is the U.S. Supply Chain Heading?



- >160 PV and BESS manufacturing announcements since federal incentives passed
  - Excludes cancelled and “stale” announcements
- New manufacturing announcements continue, spanning component types

Source: [SEIA Supply Chain Dashboard]

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