What Happens Now for the Budding U.S. Solar Manufacturing Ecosystem?

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ABOUT

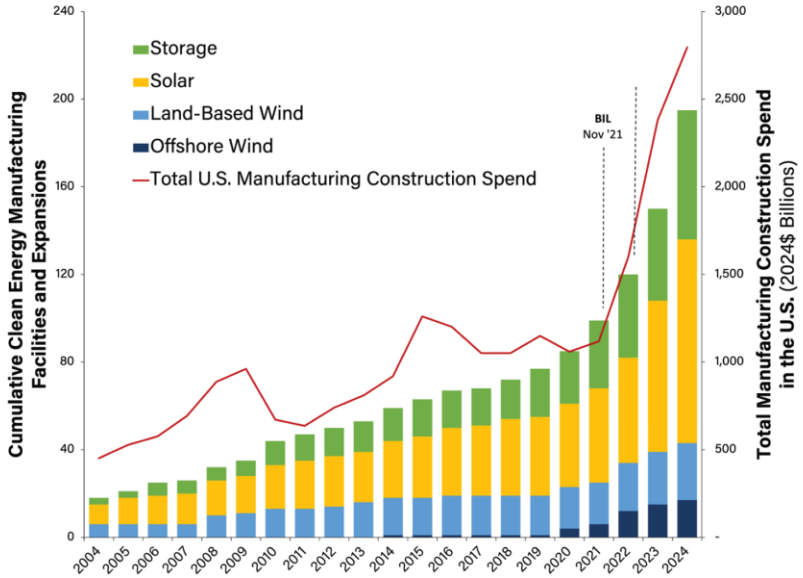
The leading voice for all clean energy technology

The American Clean Power Association (ACP) is dedicated to **meeting America's energy goals** and **strengthening the economy** through the growth of affordable, reliable and American-made power.

A Brief History of Solar Manufacturing Resurgence

- >90 operating primary solar component manufacturing facilities in the U.S. (15 under construction)
- $41 billion in domestic spending generated by factory construction over past 3 years
- $19.4 billion in annual domestic spending from operating factories.

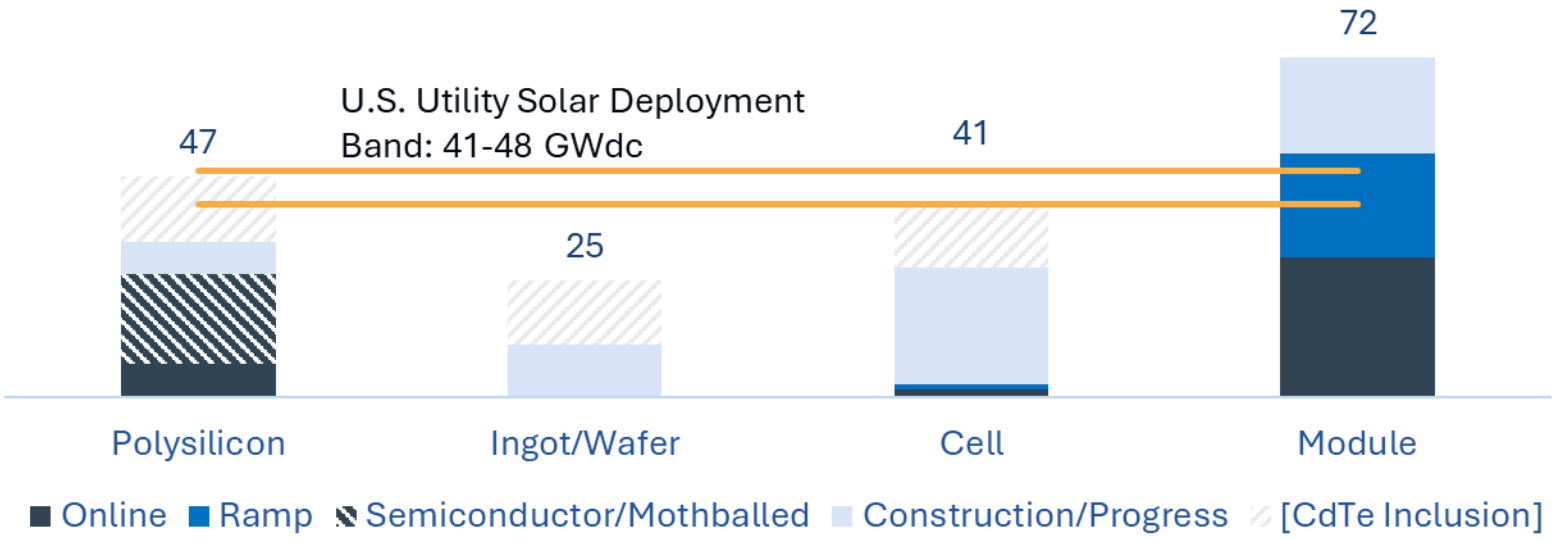
Clean Energy Manufacturing Facilities (#) and Total U.S. Economy-Wide Manufacturing Investment ($B)



Source: ACP *America Builds Power: The State of Clean Energy Manufacturing*

Realistic Path to Meeting U.S. Demand

U.S. Solar Manufacturing Capacity, 2025 (GWdc)



Source: Clean Energy Associates *PV Supply, Technology and Policy Report Q2 2025*, ACP

...and then 2025

Tariffs

- Non-sectoral (IEEPA)
- AD/CVD (Solar 3 and 4)
- Commodities 232s
- Sector-specific (Poly 232, 201, 301)

OBBBA

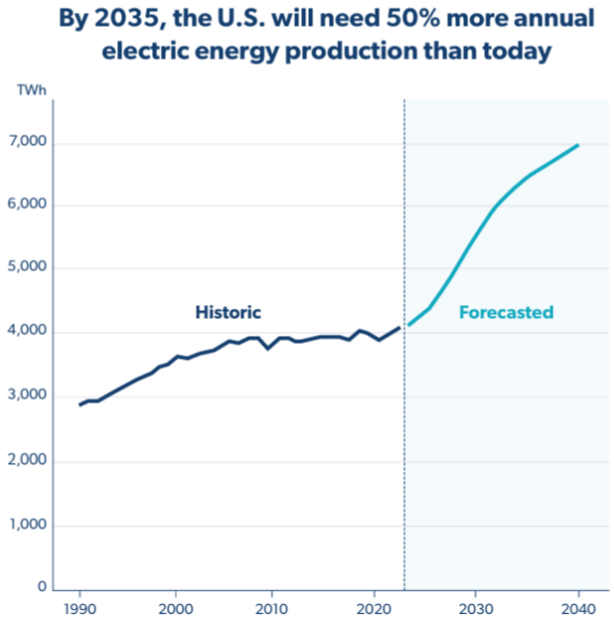
- ITC/PTC phase out
- Domestic content also phased out
- FEOC restrictions without guidance

Permitting Obstruction

- Raised risks and costs to project development → reduced appetite for technology and supplier risk

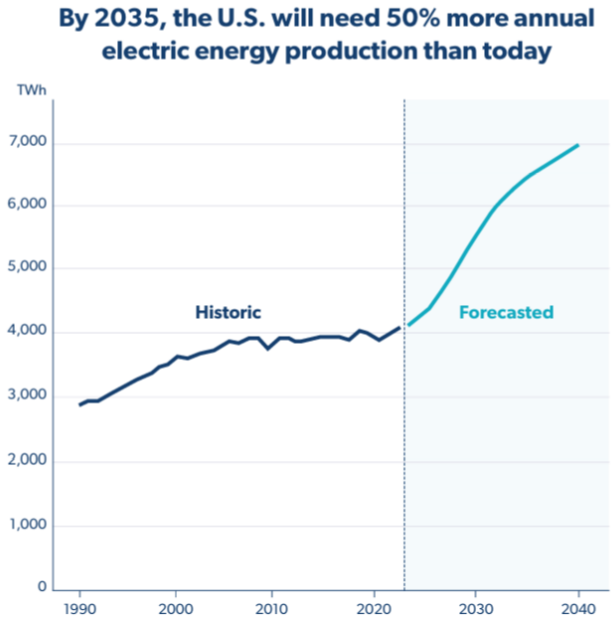
= Softer demand outlook and more hurdles for U.S. solar manufacturers

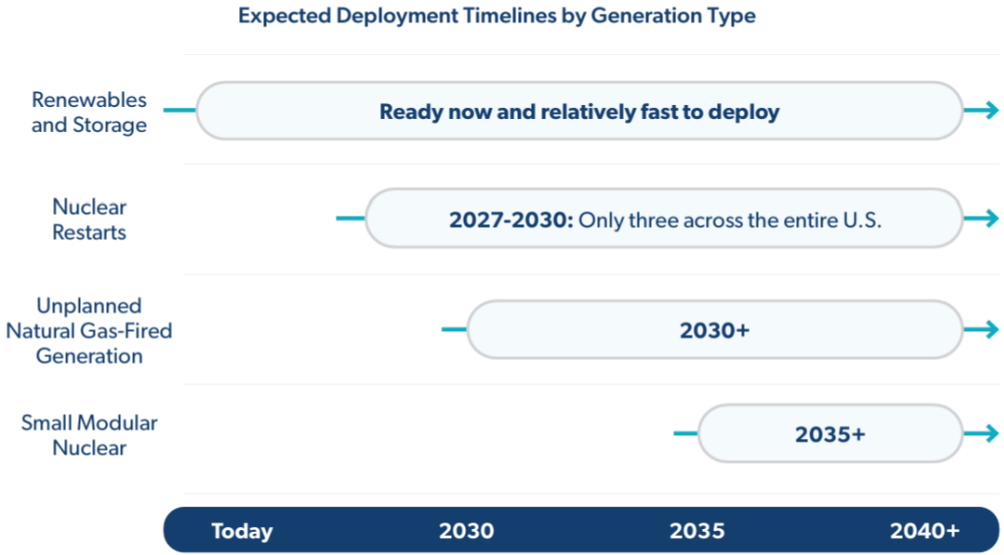
The Need is Clear: Electricity Demand will Skyrocket



Source: ACP and S&P Global National Demand Study March 2025

The Need is Clear: Renewables and Storage are Ready





Source: ACP and S&P Global National Demand Study March 2025

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But will demand be met with domestic supply?

Choose your own policy and market adventure: U.S. c-Si Cell Manufacturing as an Example

Tariffs raise the price of imported competition: AD/CVD, Section 201
… and raise the cost of production: Section 301 (non-exempted equipment), IEEPA
… or could do both: Polysilicon 232 depending on rates and quotas

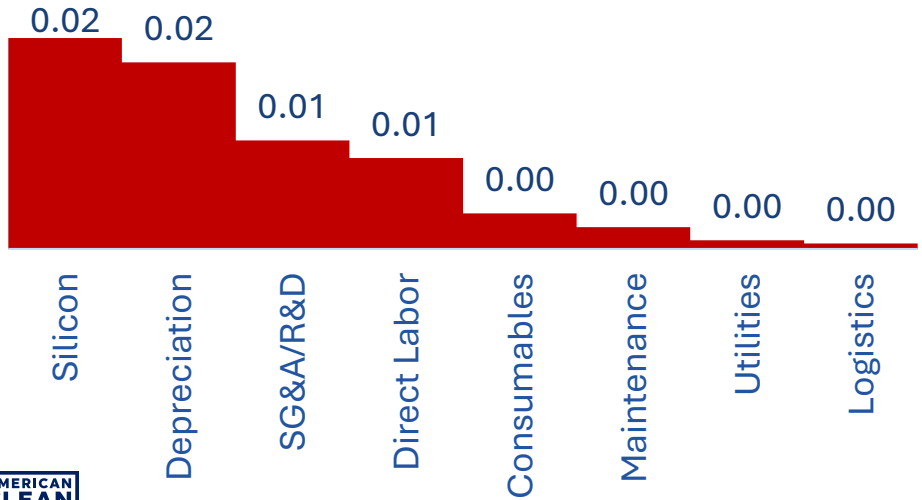
FEOC restrictions should benefit domestic suppliers
… depending on Treasury interpretation and guidance (e.g., certification requirements, effective control provisions)
… and cost/availability of compliant sub-suppliers (e.g., wafers)

Meanwhile…
- Investment capital is harder to raise, more expensive if available
- Supply chain partners hesitant to follow customers to market

Challenges for Building an Upstream U.S. Ecosystem: Costs

Ex: Building U.S. wafers estimated to be 2X the cost of SE Asia wafers

Cost Premium for U.S. Ingot/Wafer Manufacturing over SE Asia Facility ($/Wdc)



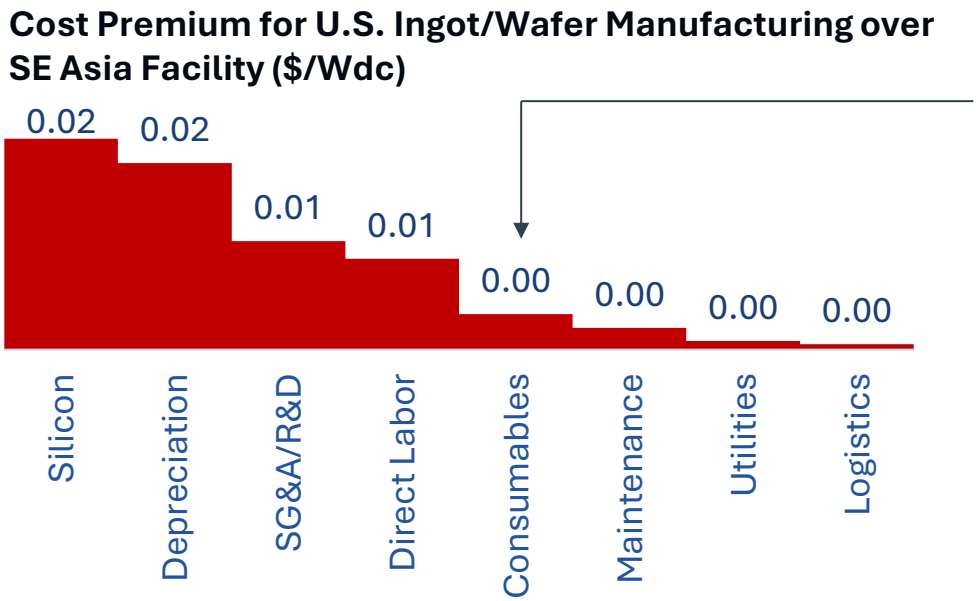
Source: Clean Energy Associates *PV Price Forecasting Q2 2025*, ACP

Polysilicon
Traceable, non-China premium
PERC vs. TOPCon costs nearly 1¢

Depreciation
5X-6X CapEx vs. SE Asia
Imported equipment

Labor
<1 c/W difference, but does not consider training requirements, skills gap

Challenges for Building an Upstream U.S. Ecosystem: Local Supply Chains



Source: Clean Energy Associates *PV Price Forecasting Q2 2025*, ACP

Consumables

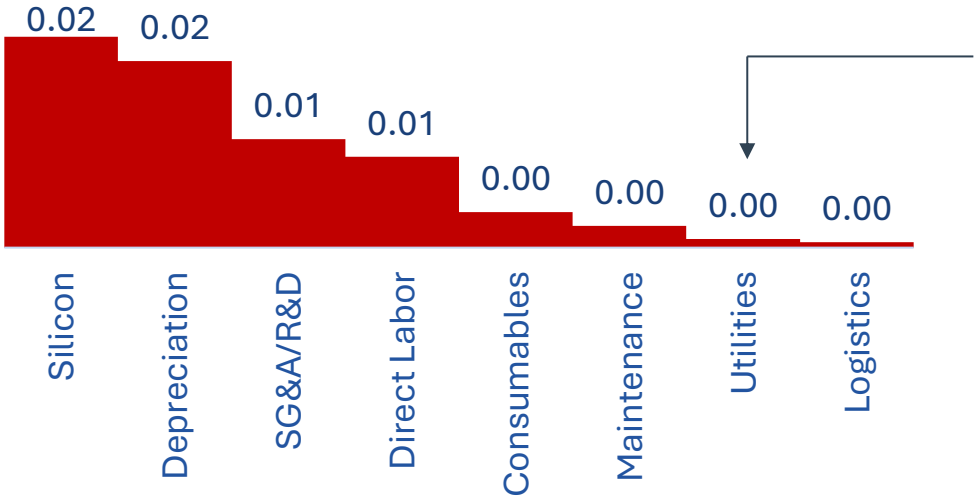
Argon – likely low difference, especially with recycling

Diamond wire saws and **Quartz crucibles** are critical consumables without robust domestic supply

U.S. is the leading source of ultra-high purity silica needed for quartz crucibles.

Challenges for Building an Upstream U.S. Ecosystem: Macroeconomic risk

Cost Premium for U.S. Ingot/Wafer Manufacturing over SE Asia Facility ($/Wdc)



Source: Clean Energy Associates *PV Price Forecasting Q2 2025*, ACP

Utilities

U.S. historically has very competitive utility rates

If energy supply is constrained, power prices will increase and impact the cost of manufacturing

Ingot/Wafering requires stable, consistent power

Translating Industry Needs to Priorities

Build market certainty

Policy environment should support – not punish – U.S. manufacturing investment

- Responsive, workable, and administrable OBBBA implementation
- Strategic and stable approach to tariffs
- Support deployment, which serves as U.S. manufacturers' demand base

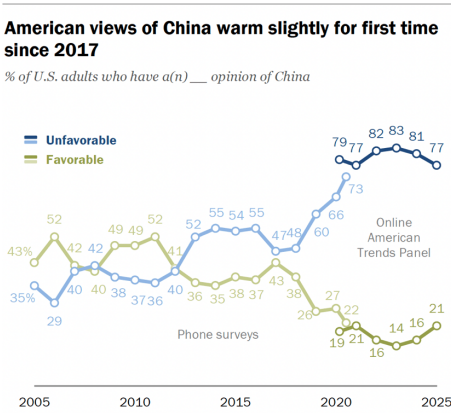
Solar is American-made

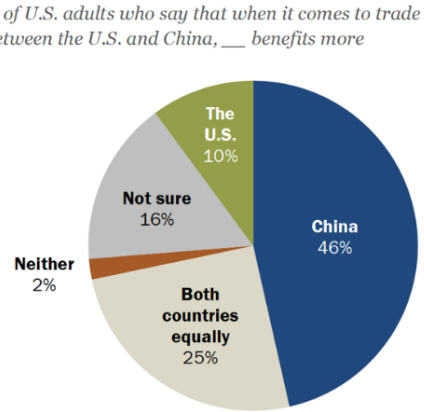
Combat misperception that U.S. solar is intrinsically foreign

- U.S.-made solar should be *celebrated and defended,* not a pipedream for future achievement

Policy engagement that reflects ambition and realism

Solar supply chains must meet the politics of the moment





Source: Pew Research Center

But can't assume widespread agreement that solar is a must

POLITICO

China doubles down on climate, wind and solar pledges — a day after Trump called them a 'scam'

Clean energy is the "trend of our time," Chinese President Xi Jinping said while announcing modest targets for trimming the economic superpower's carbon pollution.

Build recognition that manufacturing drives innovation

U.S. Department of Defense

U.S. manufacturing drives

55% of patents and

70% of R&D spending

Automation is Innovation

Higher cost of labor

More automation

Localization of technicians, engineering and research

The Broad Ecosystem Matters

Steel Module Frames

Reduce flex on Large Format Modules

Thinner wafers?

Poly cost reduction Supports HJT?

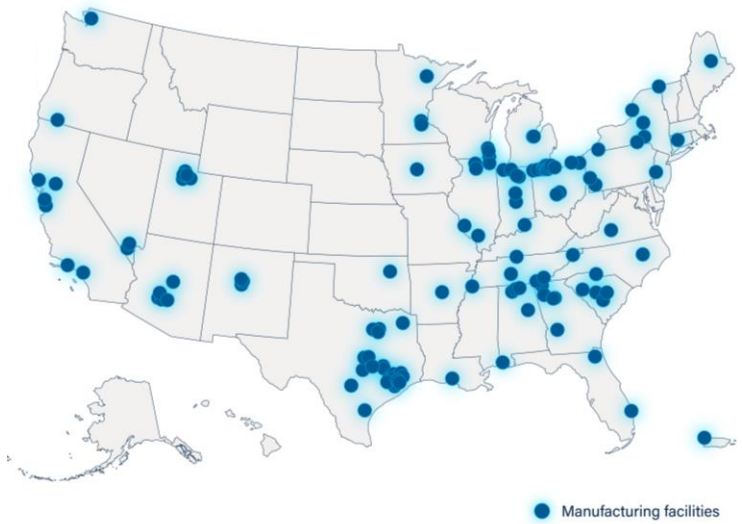
U.S. manufacturing strengthens industry and local economies

Domestic solar manufacturing boasts a 4X jobs multiplier

Solar manufacturing earnings (including benefits) are nearly $60k more than average U.S. worker

$19.2 billion is annual domestic spending generated

90+ Solar Manufacturing Facilities across 31 States



Our mission is to mobilize at a moment's notice, engage elected officials, and **champion the cause of clean energy jobs, innovation, and power.**

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