

U. S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

Webinar: Reaching for the Solar Future: How the Inflation Reduction Act Impacts Solar Deployment and Expands Manufacturing

September 2022

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Welcome and Logistics

- This Zoom call is being recorded and will be posted on DOE's website.
- Slides, recording, and transcript will be available on energy.gov/seto-webinars
- Submit questions in the Q&A
- For technical difficulties, chat or email Dawn Washelesky (dawn.washelesky@ee.doe.gov)

Solar Energy Technologies Office

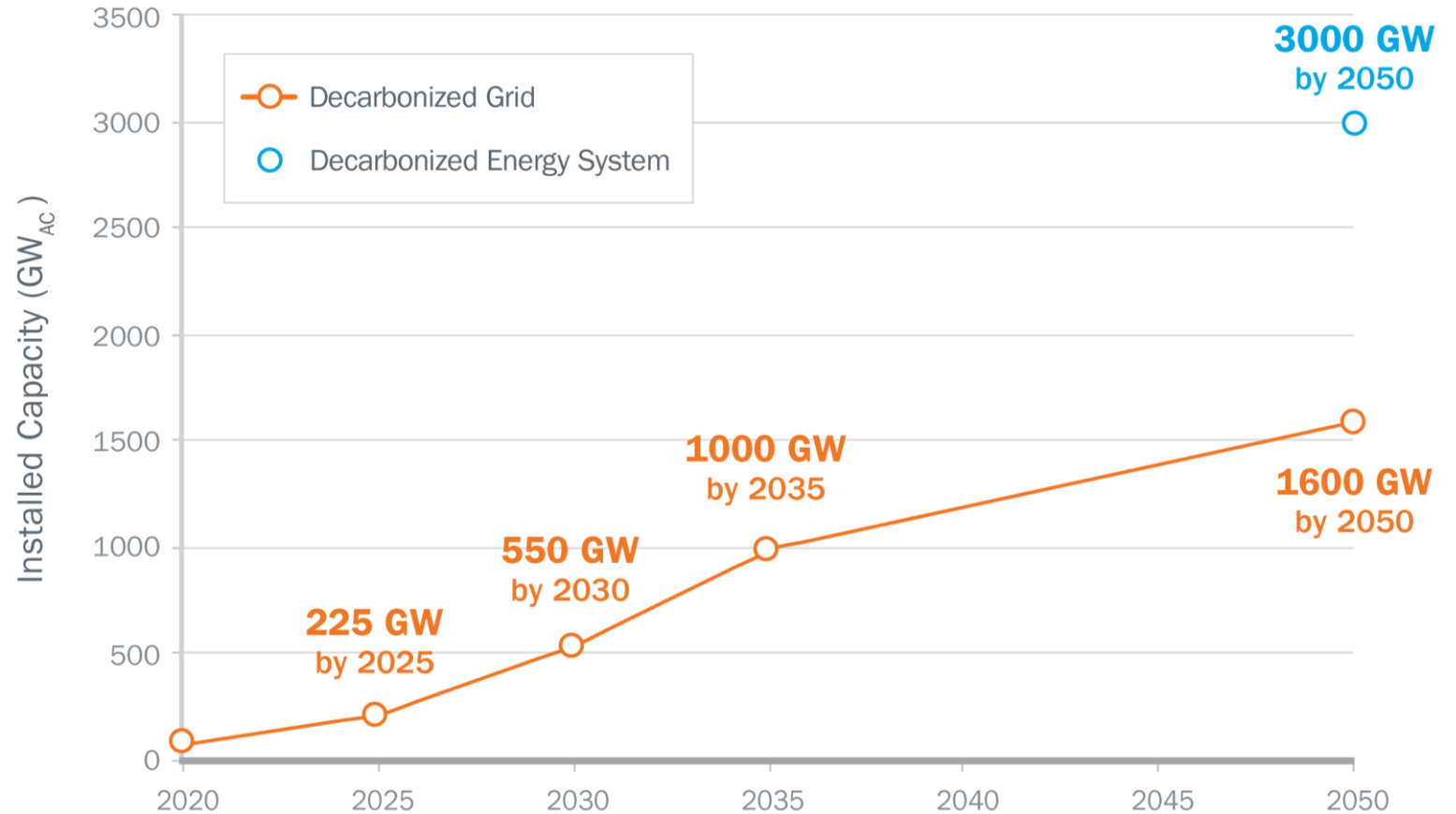
SETO accelerates the advancement and deployment of solar technology in support of an equitable transition to a decarbonized economy.

To achieve this mission, solar energy must:

- ▶ Be **affordable** and **accessible** for all Americans
- ▶ Support the **reliability**, **resilience**, and **security** of the grid
- ▶ Create a sustainable industry that **supports jobs**, **manufacturing**, and the **circular economy** in a wide range of applications

Solar Deployment by 2050

- Need rapid, sustained growth over next decade+.
- The Solar Futures Study analysis of 100% energy decarbonization shows solar capacity reaching 3,000 GW by 2050.



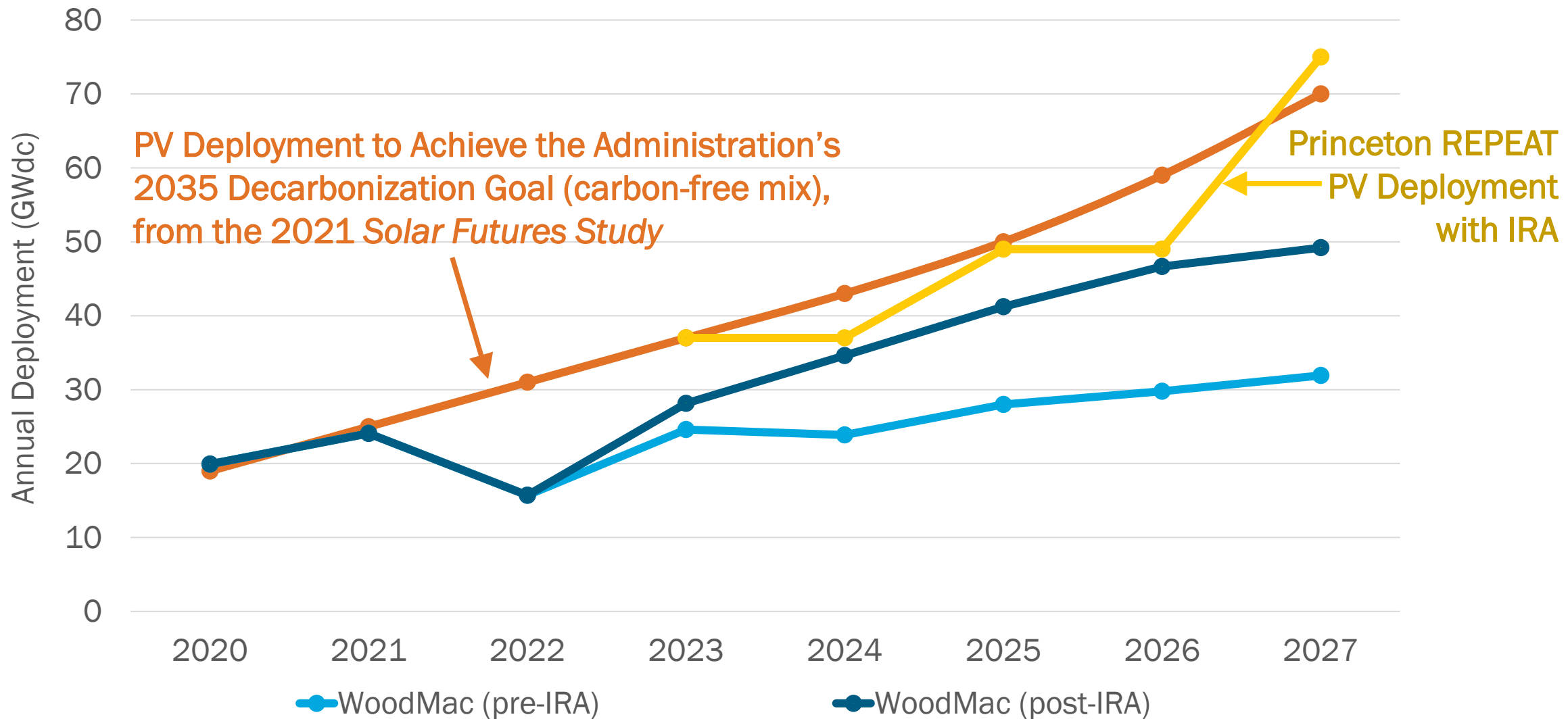
Note: The Solar Futures Study modeled the deployment of solar necessary for a decarbonized grid. Preliminary modeling shows that decarbonizing the entire energy system could result in as much as 3,000 GW of solar due to increased electrification across the energy system.

IRA Positions the Domestic Solar Industry for Growth

- **Increased subsidies for installation of PV and CSP systems**
 - 30% investment tax credit (ITC) for residential, commercial, and utility-scale
 - 2.6¢/kWh* production tax credit (PTC), potentially of interest at utility-scale
 - Bonuses for high domestic content (10% absolute for ITC, 10% relative for PTC)
 - Bonuses for locating in communities impacted by the energy transition (10%)
 - Penalties for low-cost labor (below prevailing wage) on projects over 1 MW_{ac}
- **Manufacturing production tax credits (MPTC)**
 - Like Solar Energy Manufacturing for America (SEMA), but with more...
 - Additional credits for inverters, backsheets, tracker components, and tellurium

*Value in 2022, it increases annually with inflation.

Estimated Impact of IRA on U.S. PV Deployment

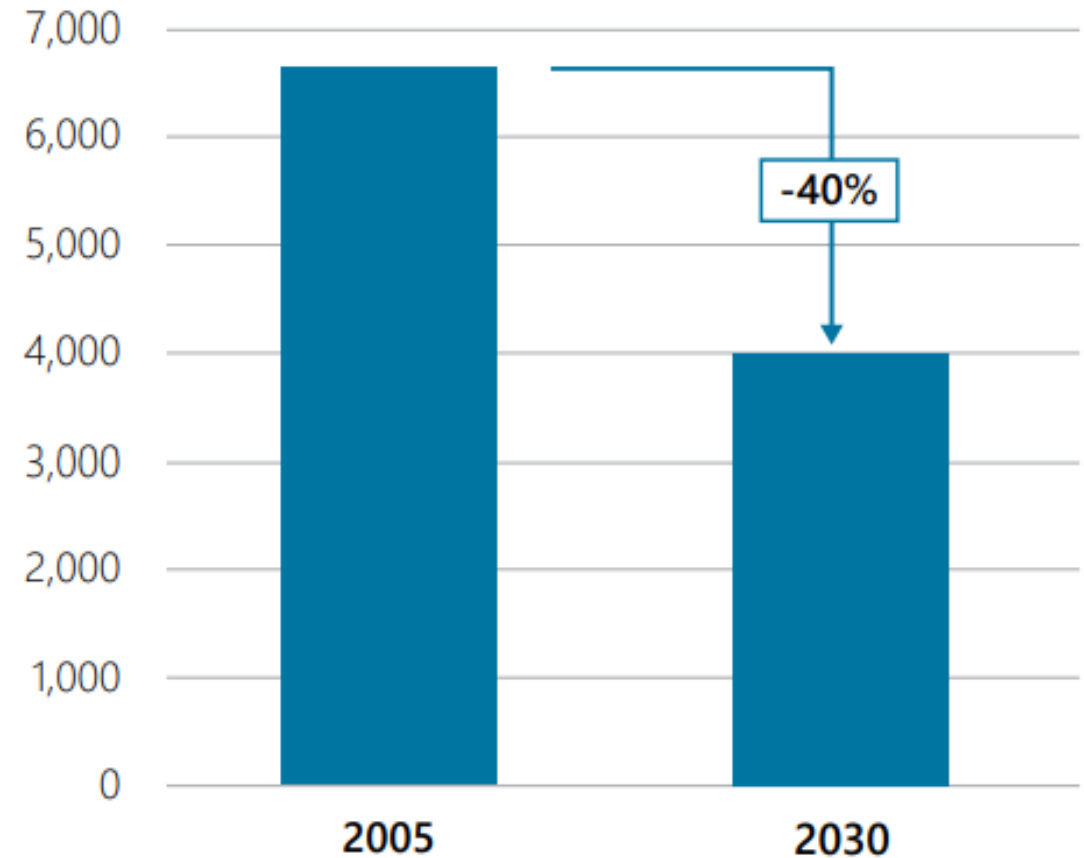


From: Wood Mackenzie U.S. Solar Market Insight Q3 2022, September 2022 with SETO annotation

Estimated Impact on U.S. Emissions Reductions

- DOE's preliminary assessment finds that the Inflation Reduction Act and the Bipartisan Infrastructure Law, in combination with past actions, are projected to drive 2030 economy wide GHG emissions to 40% below 2005 levels.

[DOE Projects Monumental Emissions Reduction From Inflation Reduction Act](#)



Net Economy-wide GHG Emissions Over Time (MMT CO₂e)

Tax Credit Changes for Individual Homeowners

- **The ITC increased in amount and its timeline has been extended.**
If you install a residential PV system...
 - Between 2022 (retroactive) and 2032, you will receive a 30% tax credit.
 - in 2033...26%
 - in 2034...22%
- **The solar+storage equipment expenses included in the ITC have expanded.** Now, energy storage devices that have a capacity rating of 3 kilowatt hours or greater are included. This includes stand-alone storage.
- Savings from ITC for average residential PV system: \$7,500.

www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics

Tax Credit Changes for Businesses

- The ITC increased in amount and its timeline has been extended.
- A Production Tax Credit (PTC) is now available, which enables project owners to receive a tax credit for the electricity they generate rather than the upfront costs.
- Organizations that don't have a tax burden, like non-profits or local governments, can take advantage of the tax credits through either direct pay or a transfer of credit to a profit-generating company.

Labor Requirements

To qualify for the full ITC or PTC, projects must satisfy the Treasury Department's labor requirements:

- All wages for the first five years of the project for the ITC and the first ten years of the project for the PTC—must be paid at the prevailing rates of that location.
- 10% of total construction labor hours for a project must be performed by an apprentice in 2022 (percentage increases yearly)

		2022-2032
ITC	Meets labor requirements	30%
	Does not meet labor requirements*	6%
PTC for 10 years	Meets labor requirements	2.6¢
	Does not meet labor requirements*	0.5¢

*starting 60 days after Treasury guidelines

Bonus Credits

- **Domestic Content Bonus** – 10% increase if all steel or iron used must be produced in the United States and a “required percentage” of the total costs of manufactured products (including components) of the facility need to be mined, produced, or manufactured in the United States
- **Energy Community Bonus** – 10% increase if project is located in an energy community, like a brownfield site, a community with fossil fuel-based industries and high unemployment, or located near a closed coal plant
- **Low-Income Bonus** – a 10-20% increase if located in a low-income community or housing project. Only available with the ITC and subject to a 1.8 GW program cap per year

Federal Tax Credits for Solar Manufacturers

There are two federal tax credits that support clean energy manufacturing in the United States:

- **Advanced Manufacturing Production Tax Credit (45X MPTC)** -- Provides tax credits for each clean energy component domestically produced across the solar PV supply chain



- **Advanced Energy Project Credit (48C ITC)** -- Provides a tax credit for building and commissioning a facility for clean-energy component manufacturing

These two credits cannot be taken simultaneously.

Manufacturing Tax Credits for CSP Applications

- 48C ITC applies to all new or upgraded facilities that produce components specifically designed for clean-energy technologies, including CSP, which have a reasonable expectation of commercial viability.
- 48C ITC is now also applicable to projects which re-equip industrial or manufacturing facilities with equipment designed to reduce greenhouse gas emissions by at least 20 percent through the installation of low- or zero-carbon process heat systems.
- 45X MPTC does not apply to CSP components.
 - Only PV, wind, and battery components; and critical minerals

Estimated Impact of IRA on U.S. Solar Manufacturing

2-3 years

Significant new investments in domestic solar module, tracker, inverter and racking capacity

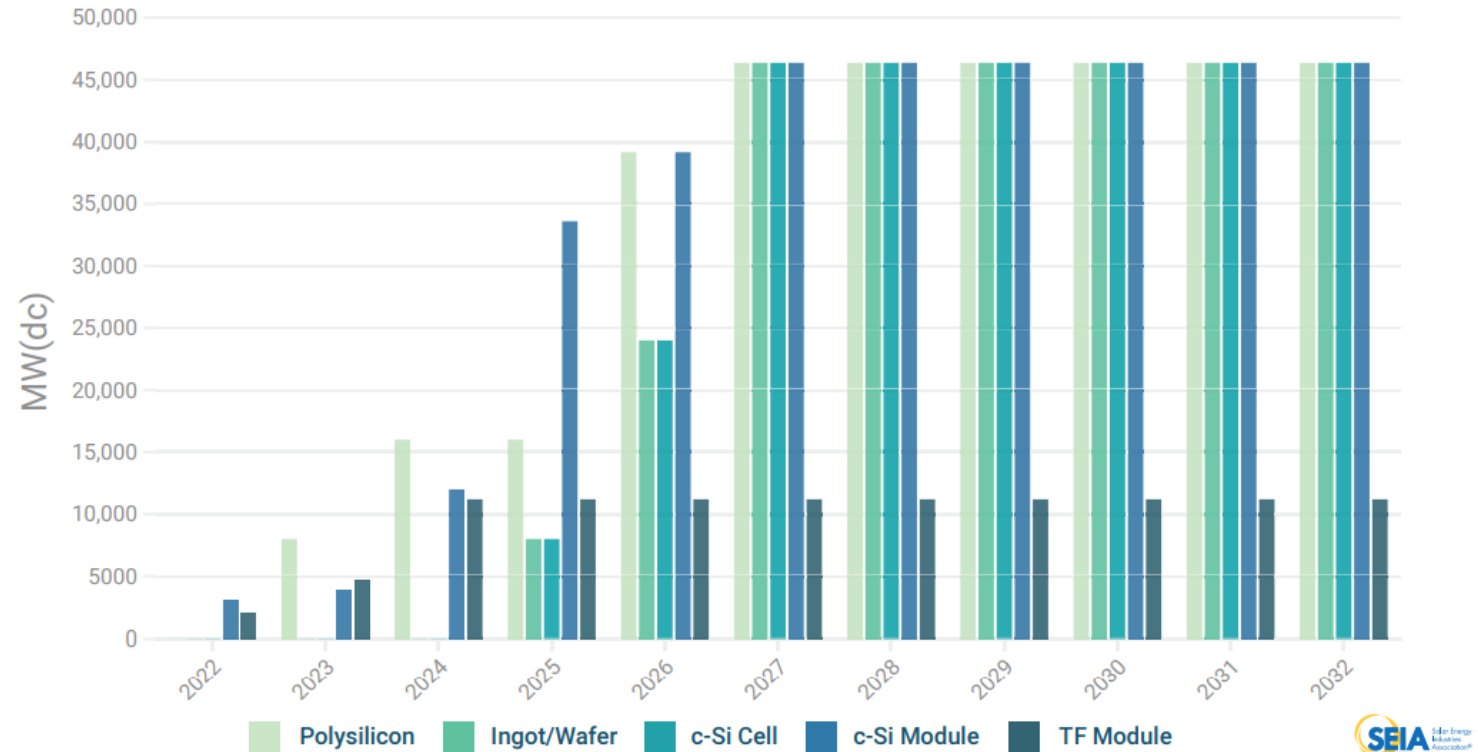
3-5 years

New investments in solar ingot, wafer and cell capacity

By 2030

The IRA will be instrumental in helping the U.S. solar industry meet its goal of 50 gigawatts (GW_{dc}) of domestic solar manufacturing capacity across all key industry segments.

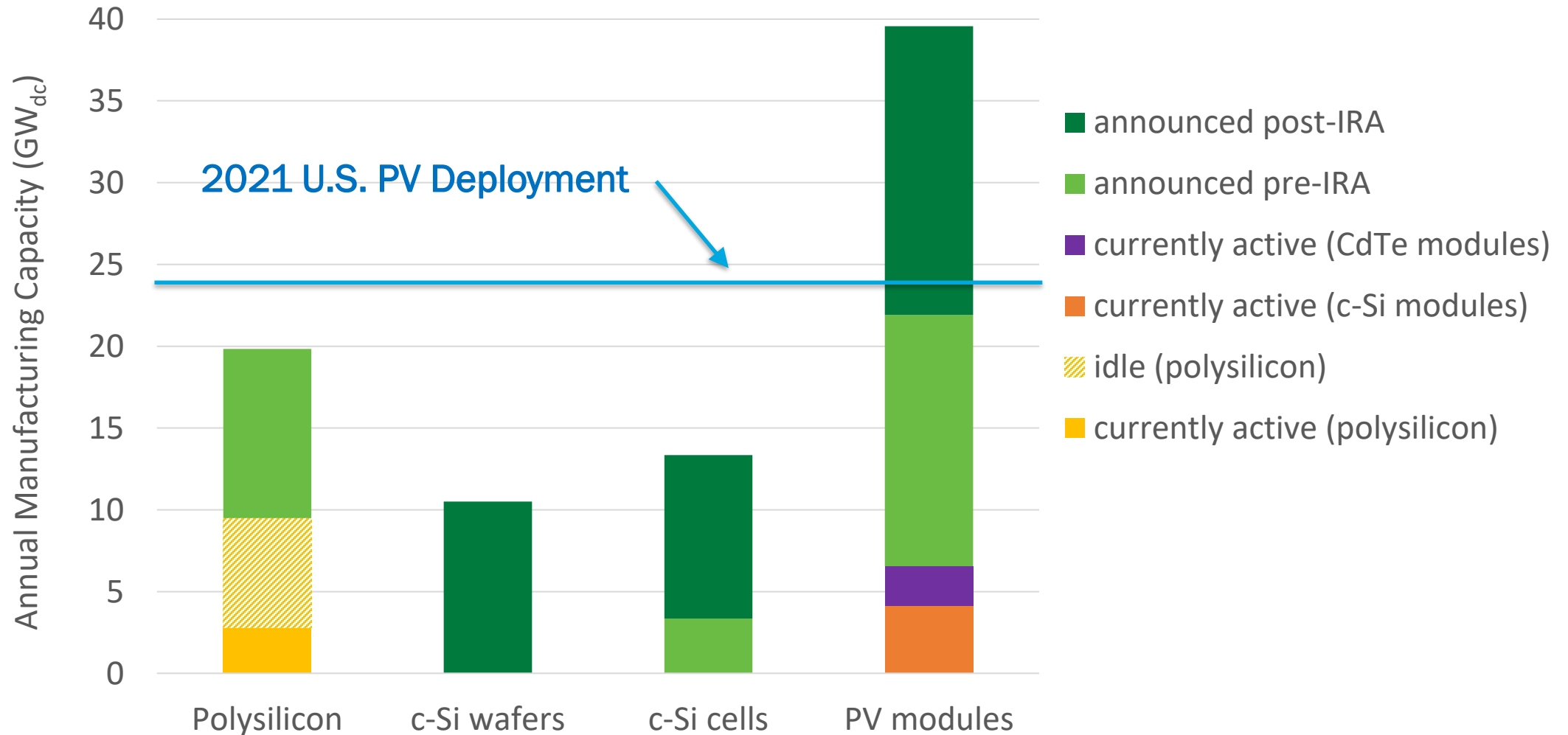
Module Supply Chain Domestic Production Under the IRA



From: SEIA Catalyzing American Solar Manufacturing Roadmap 2022.



Domestic PV Manufacturing Capacity: Public Announcements



From: Wood Mackenzie's U.S. Solar Market Insight: Q1 2022, U.S. Census Bureau USA Trade Online, and DOE internal tracking of public announcements.

What is SETO doing to support IRA investments?

- **DEPLOYMENT**

- Supporting tools and partnerships to reduce deployment barriers (e.g., SolarAPP+, Interconnection Innovation Exchange (i2X), siting on mine lands)
- Improving solar's ability to support the reliability, resilience & security of the grid

- **EQUITABLE ACCESS to BENEFITS of SOLAR**

- National Community Solar Partnership (NCSP)
- Workforce training partnerships

- **MANUFACTURING AND INNOVATION**

- R&D to advance new technologies and reduce costs
- Support for entrepreneurs and businesses commercializing new technologies

Recent Announcements and Achievements



SETO announced the winners of the [American-Made Solar Prize Round 5](#), a multimillion-dollar competition which awarded \$500K each to two teams in the hardware track and \$200K each to two teams in the software track



The [SolarAPP+ \(Solar Automated Permit Processing Plus\) Prize](#) launched:

- New prize to encourage communities to adopt SolarAPP+, an automated permitting software tool
- SETO will award prizes of \$15,000 to local governments that successfully adopt or pilot SolarAPP+
- Prize funding will help lower the costs associated with the solar adoption process



The [Summer Solar Savings campaign](#):

- Highlighted DOE work to expand access to solar power so more families can save on electricity bills
- Launched a new community solar award program and subscription platform
- Announced new community solar utility allowance guidance



The [Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics](#) was updated to reflect recent policy changes

Recent Funding Opportunities

Funding Opportunity Announcements (FOAs)	Research Area	Amount
<u>Solar Manufacturing Incubator</u>	M&C	\$27M
<u>Photovoltaics Research and Development</u>	PV	\$29M
<u>Solar and Wind Grid Services and Reliability Demonstration</u>	SI	\$26M
<u>Advancing Equity Through Workforce Partnerships</u>	Workforce	\$10M
<u>Concentrating Solar Thermal Power Fiscal Year 2022 Research, Development, and Demonstration Program</u>	CSP	\$25M
<u>Deploying Solar with Wildlife and Ecosystem Services Benefits (SolWEB)</u>	Soft Costs	\$15M
<u>Renewables Advancing Community Energy Resilience (RACER)</u>	SI	\$25M
<u>Foundational Agrivoltaic Research for Megawatt Scale (FARMS)</u>	Soft Costs	\$8M
<u>Small Innovative Projects in Solar 2022</u>	CSP, PV	\$6M

Open Prize Competitions

- [American-Made Solar Prize Round 6](#) – Sign up to compete by **Oct. 6, 2022**
- [The Sunny Awards for Equitable Community Solar](#) – Applications due **Oct. 7, 2022**
- [American-Made Perovskite Startup Prize](#) – Applications for the current cycle of the Countdown Contest due **Nov. 3, 2022**
- [American-Made SolarAPP+ Prize](#) – Sign up to compete by **Nov. 4, 2022**
- [American-Made Challenges: Solar Desalination Prize Round 2](#) – Design Contest and Test Contest open through **Apr. 2025**

Thank you for attending!

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