August 6, 2025

Stephen Astle
Director, Defense Industrial Base Division
Office of Strategic Industries and Economic Security
Bureau of Industry and Security (BIS)
U.S. Department of Commerce
1401 Constitution Avenue NW
Washington, DC 20230

Re: Notice of Request for Public Comments on Section 232 National Security Investigation of Imports of Polysilicon and its Derivatives [Docket No. 250709–0121] [XRIN 0694–XC128]

Dear Director Astle,

The American Council on Renewable Energy ("ACORE"), Solar Energy Industries Association ("SEIA"), and American Clean Power Association ("ACP") (collectively, "U.S. Clean Energy Organizations") respectfully submit these comments to the Bureau of Industry and Security (BIS) in response to the Notice of Request for Public Comments on the Section 232 National Security Investigation of Imports of Polysilicon and its Derivatives [Docket No. 250709–0121] [XRIN 0694–XC128] (90 FR 31955, July 16, 2025) ("the Investigation").

ACORE is a 501 (c)(3) nonprofit organization that unites finance, policy, and technology to accelerate the transition to a clean energy economy. ACORE's membership spans the entire energy value chain, including clean energy developers, institutional investors, corporate buyers of clean energy, manufacturers, electric power generators, retail energy providers, and other stakeholders. In 2023, roughly 85% of the booming utility-scale U.S. clean energy growth was financed, developed, owned, or contracted for by ACORE members.

SEIA is the national trade association for the solar + storage industries. SEIA works with its approximately 1,200 member companies (including manufacturers; project developers; engineering, procurement, and construction ("EPC") companies; recyclers; and financiers) and other strategic partners to advocate for policies that advance the manufacturing and deployment of solar and storage technologies, create jobs, and promote the growth of reliable, low-cost solar power.

ACP is the leading trade association of the multi-tech clean energy industry, representing energy storage, wind, utility-scale solar, hydrogen, clean energy finance, and transmission companies. The Association's members are committed to meeting America's energy and national security goals and building the U.S. economy with fast-growing, low-cost, and reliable domestic power. With respect to companies involved in the solar energy industry, ACP's members include manufacturers, importers, project developers, electric utilities, and project financing companies.

Introduction and Executive Summary

On July 1, 2025, the Secretary of Commerce initiated an investigation to determine the effects on the national security of the United States of polysilicon and its derivatives under section 232 of the Trade Expansion Act of 1962, as amended ("Section 232"). In the Federal Register Notice requesting public comments, BIS expressed particular interest in input on several questions.

Briefly summarized, these key questions include information related to domestic demand and the potential for increasing domestic production of polysilicon, the role of foreign suppliers in meeting that demand, the impact of concentrated supply chains, the impact of current trade policies on domestic production, and other matters.[1]

The U.S. Clean Energy Organizations and our membership appreciate the opportunity to provide insights on these important questions. As many of the issues are intertwined, and for brevity, these comments are divided into several sections that seek to address the core questions presented by BIS collectively.

- First, we provide a brief overview of polysilicon's role as a key input into products and systems essential to U.S. energy security, digital infrastructure, and the defense industrial base.

- Second, we provide an overview of the current state of the market and the risks presented by current supply chain dominance by the People's Republic of China ("PRC" or "China").

- Third, we discuss the important contribution of solar and other clean energy generation to a robust domestic energy resource base that meets the need for affordable, reliable electricity to advance U.S. technological leadership, national security, and economic prosperity.

- Fourth, we discuss the important contribution of solar and other clean energy technologies to substantial reshoring of U.S. manufacturing capacity, including for polysilicon.

- Finally, we provide an overview of current U.S. policies in place to address foreign supply chain concerns and offer recommendations to support a more secure polysilicon supply chain for the future.

1.) Polysilicon: A Key Input for U.S. Energy Security, Digital Infrastructure, and the Defense Industrial Base

Advancements in technologies such as artificial intelligence ("AI") have heightened the role of access to affordable, reliable, and secure electric power as an essential foundational component to U.S. national security, technological leadership, and economic prosperity. Polysilicon is an essential input into the technologies necessary to generate and harness electricity to support U.S. national security, advanced technologies, communications, manufacturing capacity, and other activities essential to modern life. Secure access to traceable polysilicon is also an essential input for the production of semiconductors as well as solar panels.[2]

For example, semiconductors are necessary for a host of consumer electronics, as well as advanced chips necessary for the training and operations of artificial intelligence applications which have substantial national security implications.

As BIS noted in releasing its controls on the export of advanced chips to the PRC in 2022:

> "AI capabilities—facilitated by supercomputing, built on advanced semiconductors—present U.S. national security concerns because they allow AI to be used to improve the speed and accuracy of military decision making, planning, and logistics. They can be used for cognitive electronic warfare, radar, signals intelligence, and jamming. These capabilities can also create concerns when they are used to support facial recognition surveillance systems for human rights abuses. And they can be employed for the creation and diffusion of communications for disinformation campaigns to confuse, disrupt, or manufacture outcomes that undermine democratic governance and sow social unrest. These are the national security and foreign policy considerations on which this rule is based."[3]

In addition, the Department of Defense's ("DoD") Defense Innovation Unit's priorities undergird the importance of electricity-dependent applications to future national defense needs. Specifically, the agency's areas of focus include: AI, Autonomy, Cyber and Telecom, Emerging Technology, Energy, Human Systems, and Space.[4] All of these areas are substantially tied to affordable, secure electric power and items produced using polysilicon.

The Department of Energy predicts that power demand from data centers could triple by 2028,[5] creating unique challenges for America's electric grid. The data centers being built across the country need electricity sources that are reliable, consistent, easy to build, quick to market, and low-cost.

In Q1 of 2025, solar photovoltaic ("PV") systems accounted for nearly 70% of all new electricity-generating capacity in the United States.[6] Solar PV is the fastest to deploy energy source, taking only 1.4 years to develop.[7] Numerous studies have shown that high levels of solar and storage adoption can enhance the reliability of the U.S. electrical grid.[8]

Solar combined with storage is the obvious choice. Solar is the most affordable electricity generating source in America, and it is easily scalable and distributable to any location. Moreover, it is by far the quickest to build and has more projects already in development than every other power source combined.

The United States now ranks second in solar power generation and third in solar manufacturing globally—powering over 35 million American homes in rural, suburban, and rural areas. Moreover, costs to deploy solar have decreased over 90% in the last decade.[9]

Given the numerous tariffs and import restrictions applicable to solar products that are already in place, additional new tariffs on imports of polysilicon derivative products would have severe impacts on America's energy security, advanced technologies, defense applications, and industrial capacity. American businesses would face higher costs. And the reduction in deployment of solar would present unwarranted risk to grid and national security, as grid demand growth projects to exceed supply, which "increase[s] the risk of power outages by 100 times in 2030."[10]

2.) National Security Considerations and Market Challenges

Polysilicon is an important input for numerous products and systems with implications for national security.

Current Market Overview

Currently, there are only two U.S. producers of solar-grade polysilicon: German-headquartered Wacker Chemie and Hemlock Semiconductor ("HSC"). Wacker has a site in Tennessee, while Hemlock, which is owned by U.S.-based Corning Inc. and Japan's Shin-Etsu Handotai, has a semiconductor fabrication plant in Michigan with an estimated combined production capacity of 33,000 metric tons per year.[11]

The increase in domestic demand for both clean energy technologies and semiconductors, as well as a supportive policy environment, have led to some positive developments for domestic production of polysilicon for both solar energy and semiconductors:

- In April 2024, Tennessee's Highland Materials said it had secured $256 million in Section 48C advanced energy project tax credits to build a polysilicon site.[12] Its location and expected commercial operations date are yet to be announced.

- In October 2024, the Commerce Department announced an agreement with HSC for up to $325 million in direct funding under the CHIPS and Science Act,[13] to help fund the construction of a new manufacturing facility and expand polysilicon production for semiconductor chips.

- In March 2025, Suniva and Heliene announced an agreement with chipmaker Corning to domestically produce solar modules made with U.S.-manufactured polysilicon [from Hemlock Semiconductor facilities in Michigan], wafers, and cells.[14]

- As of Q1 2025, the Clean Investment Monitor (CIM) tracks 110 operational solar component manufacturing projects across the US with the capacity to produce 42 gigawatts ("GW") of modules, 8 GW of cells, and 26 GW of polysilicon (26.3% below the level consumed by 2024 solar deployment). CIM estimates that 9 GW of polysilicon production may come online by 2035.[15]

Challenges and National Security Concerns

Despite positive progress, only 13% of that capacity is currently under construction, and 87% is tied to announced facilities that have not yet broken ground.[16] In addition, in January 2025, REC Silicon shut down a polysilicon plant in Moses Lake, Washington, that struggled to achieve customers' quality requirements.[17] Despite producing silicon since the 1980s at the plant, it was shuttered in 2019 because [Chinese-imposed] tariffs made it uneconomical to sell to customers in China, where nearly all silicon wafers for solar panels are made.[18]

There is insufficient U.S. polysilicon capacity to serve U.S. solar deployment needs. While overall global production increased from 513 thousand tons in 2020 to 1,913 in 2024, most of the increased capacity was from PRC firms, and the U.S. market share has dropped from 5% to less than 1%.[19] PRC firms increased production by 32% in 2024 alone and now represent 96% of the world's solar-grade polysilicon supply. The largest single PRC producer represents 31% of the global supply (594,000 tons).[20]

While polysilicon is a commodity product that presents little national security concern on its own, its production is dominated by the PRC, which the Department[21] has determined to be a foreign adversary. The PRC dominates polysilicon production which present potential risks such as supply disruption, market manipulation, and economic coercion.

U.S. polysilicon production costs range from $18-25 per kilogram ("kg"), whereas PRC prices are around $5 per kg.[22] The major U.S. polysilicon producers saw their market share shrink from $1 billion in 2011 to $107 million in 2018 after the PRC placed high duties on American-made polysilicon.[23] In 2024, PRC polysilicon production reached the equivalent of 850 GW of modules, compared to total global installations of 460 GW in 2024 and ended the year with substantial inventories.[24] Recent reporting indicates that in response to overcapacity-driven cost declines and losses, the PRC's leading firms—with encouragement from the PRC government—are seeking to establish a fund to purchase other PRC firms with the objectives of consolidation and reducing production capacity by approximately one-third.[25] The top two PRC producers generated a combined 863,199 tons in 2024—approximately 45% of global production. [26] Consolidation of the PRC polysilicon industry is likely to solidify the position of these players, while still keeping global prices below the level for U.S. domestic industry to compete absent substantial policy support.

There are various challenges to expanding U.S. production, including higher capital costs, access to energy and water, permitting time for facilities, and access to a skilled workforce. In addition, concerns about the stability of demand for either solar or semiconductors can impact profitability[27].

The national security risks of PRC overcapacity in polysilicon production—and failure to continue to support existing U.S. capacity in the pipeline—may not only compromise solar energy supply chains, but also sectors such as semiconductors, communications, and defense applications.

3.) The Role of Clean Energy in Providing Affordable, Reliable, Domestic Electricity and Strengthening the U.S. Energy Resource Base and System Resiliency

Any policy that slows clean energy deployment has national security consequences, including less overall electricity generation to meet technology and operational requirements, higher energy prices for all consumers, including the U.S. military and public safety operations, and less resilient infrastructure and facilities.

After nearly two decades of flat electricity demand growth, we have entered a period of spiking demand driven in part by national security imperatives including support for AI technology and data center growth. Over the next five years, the U.S. is projected to require expanding electricity generation capacity by 128 GW—equivalent to the power needed for over 133 Oklahoma Cities.[28]

The U.S. solar and storage industries play a key role in bolstering affordable, reliable, domestic electricity generation, manufacturing, job growth, and economic development. Solar and storage are the largest sources for new U.S. electric grid capacity. In 2024, they accounted for 84% of new electric capacity, and this new generation helps to support a more resilient and flexible energy system.

Solar energy is also essential national infrastructure. It powers critical assets across the civilian and defense sectors, from military installations to water systems, hospitals, and data centers. Moreover, American grid modernization and energy diversification depend on solar. Deployment delays threaten resilience planning, especially in emergency-prone or defense-relevant areas. The Department of Defense[29] and other federal agencies are integrating distributed energy resources, including solar and storage, into base and asset resilience frameworks.

The U.S. military and U.S. critical infrastructure increasing rely on use of solar plus storage. In particular, the U.S. military increasingly uses solar plus storage to harden facilities. At Joint Base Lewis–McChord, solar microgrids are described as "critical" to ensuring rapid deployment and mission continuity.[30]

Civilian agencies also deploy solar for continuity of operations. For instance, Reno's Public Safety Center uses PV and batteries under Federal Emergency Management Agency ("FEMA") programs.[31] The DoD[32] and FEMA[33] both explicitly link solar and energy storage to defense readiness and emergency response.

Failing to continue to build a secure and resilient energy generation and transmission is a core challenge to U.S. national security and the manufacturing industrial base.

Aging electricity infrastructure, overwhelming energy demand spikes, and unpredictable weather are creating challenges for grid stability. During a 2022 winter storm that swept across the Midwest and Northeast, the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation found that gas, coal, and oil-generated power accounted for 90% of the prolonged power outages experienced throughout the storm.[34] PJM, the largest grid operator in the nation, issued a similar report of the event, finding that gas-fired plants account for 70% of unplanned outages.[35]

During Winter Storm Uri in 2021, approximately 700 Department of Defense installations were damaged across Texas, Oklahoma, Kansas, and Louisiana. In Texas, 12 of the state's 15 military bases lost power, which cost one base the equivalent of its energy bill for the entire previous year in a single month.[36] Higher levels of transmission could have mitigated those adverse impacts.

Utility companies are increasingly relying on solar to enhance reliability and prevent power outages in extreme weather conditions. During Winter Storm Heather in 2024, record-high peak demand in Texas was sustained by a grid powered with three times more solar and storage than during Winter Storm Uri in 2021, during which nearly half of capacity in ERCOT went offline.[37]

Utilities also understand that without solar, ratepayers would incur higher energy costs and see outages, disruptions, and grid failures while new conventional energy sources are constructed. In 2024, Dominion Energy wrote in its annual Integrated Resource Plan, "Growth in [demand side management] and distributed solar sufficiently offsets the increases in summer peak demand associated with economic expansion." Austin Energy in Texas echoed similar sentiments that "Producing solar locally, where it is used, reduces congestion on the transmission grid and lowers prices. To better capture this

benefit, the 2035 Plan defines local solar as any solar located within Austin Energy's load zone. This helps us prioritize resources that will reduce local reliability risk and load zone price separation."

Communities with more clean energy online are less susceptible to fuel cost spikes in the face of extreme weather and have seen lower electricity rate increases.[38] For example, from 2010 to 2023, the percentage of electricity generated by wind in Iowa grew from 15% to nearly 60%—and Iowa's electricity rates increased more slowly than 42 other states with a compound annual growth rate of under 2%.[39]

The growing need for affordable, reliable, and secure electricity to power our national security enterprise, advance technology leadership, grow manufacturing capacity, and keep costs low for consumers and businesses is a critical national security concern.

4.) Reshoring U.S. Manufacturing Capacity, including for Polysilicon

Assured access to affordable electricity is essential to the U.S. manufacturing industrial base, including in the defense sector. Each year power outages cost the U.S. economy over $150 billion, and a quarter of U.S. manufacturing businesses experience outages at least once a month, with nearly 60% reporting outages of an hour or longer—for large manufacturers, outages of one hour can increase costs by $5 million.[40]

The U.S. solar and storage industry has committed or announced over $45 billion in manufacturing investments, with the resulting facilities expected to directly employ over 56,000 Americans as they scale.[41] In addition, the solar and storage manufacturing economic engine touches most U.S. states. Forty-three states already have an operational solar or storage manufacturing facility, and most U.S. states have multiple facilities, highlighting the significant reach and economic impact of the industries that ACORE, SEIA, and ACP represent.

Companies have invested billions of dollars to produce American-made solar panels in Georgia, Ohio, Texas, South Carolina, and Alabama.[42] Solar trackers and racking manufacturing is produced with American steel in Arizona, Florida, New Mexico, and Texas, which has allowed companies like Bethlehem Steel in Pittsburgh to reopen.[43] These investments have created high-quality, good paying jobs and ensure the U.S. is ready to take on the largest increase in electricity demand seen in decades.

5.) Current Trade Policies and Recommendations

Polysilicon is a key input for solar energy generation and semiconductors, which in turn have critical impacts on U.S. energy security, digital infrastructure, and defense applications.

Existing Policies and Restrictions

Congress and the executive branch have implemented multiple policies that seek to address the concern of PRC production overcapacity in the polysilicon sector. BIS should consider these existing programs when crafting recommendations to the President for adjusting imports of polysilicon and polysilicon derivative products:

- Since 2018, during the President's prior term, tariffs under Section 201 (solar panels and modules)[44] have been in effect (though periodically modified).
- As of January 1, 2025, polysilicon imports from the PRC are subject to a 50% tariff under Section 301,[45] and a subsequent 10% IEEPA-Fentanyl related tariff (pending the President's final negotiations with the PRC).
- Since enactment in 2021, the Department of Homeland Security has utilized authority under the Uyghur Forced Labor Protection Act ("UFLPA") to limit imports of polysilicon derivative products from China, including placing firms tied to the production of polysilicon and derivative products on the UFLPA's Entity List.[46]
- Congress has enacted legislation restricting the DoD's procurement of certain information and communications technologies from PRC sourcing,[47] among other restrictions.
- Since 2012, a series of anti-dumping and countervailing duty ("AD/CVD") cases have imposed high tariffs on the import of solar panels and modules directly from the PRC as well as Taiwan,[48] and for circumvention of those AD/CVD duties, most recently on Thailand, Cambodia, Malaysia, and Vietnam,[49] largely due to the use of PRC-sourced inputs in Southeast Asian production.

Recommendations

As described above, several policies have been implemented that impact polysilicon and polysilicon derivative products. In reviewing the range of recommendations that resulted from previous Section 232 investigations,[50] it is clear that the Secretary has many options regarding what trade policy recommendations to make in the case of an affirmative national security determination.

The U.S. Clean Energy Organizations support the following guiding principles when crafting these recommendations:

Consider All Key Market Drivers and Challenges, including Current Available Alternatives (or Lack Thereof)

- The PRC's current overcapacity presents a substantial risk to developing U.S. polysilicon production, and overcoming that challenge requires the U.S. government to recognize and leverage all of the key demand drivers in the domestic market—solar energy, semiconductors, and all of the downstream products and applications that are important to U.S. national security—to ultimately be competitive in the long-run without substantial and ongoing U.S. government financial support.

- The Secretary should also consider ways to overcome the challenges to importing the equipment needed to engage in ingot, wafer, cell, and module manufacturing. Section 232 recommendations do not exist in a vacuum, and it is important to ensure that support for U.S. manufacturing takes a "whole of government" approach. Therefore, as the Secretary considers various recommendations that will support the polysilicon and its downstream users, related issues (such as how to lower tariffs for the importation of critical equipment needed by the industry) should be reviewed and, if necessary, appropriate responses should be crafted under other tariff programs. Without careful coordination, stacking of tariffs across supply chain levels can raise manufacturing costs and undercut the very manufacturing base the U.S. government is seeking to support.

Ensure Strategic Application of Tariffs to Support Current Domestic Progress

- If the Secretary decides to recommend new tariffs on imported polysilicon and/or derivative products, such tariffs should be phased in over time to avoid raising manufacturing costs and allow adequate time for industry adjustment. This is particularly true in the case of U.S. manufacturers of PV modules and cells where we are seeing strong manufacturing growth that requires imports to sustain the industry while necessary U.S. ingot and wafer capacity comes online. Additionally, a delay prior to the start date of any new tariffs will prevent significant short-term manufacturing disruptions for businesses and workers who have products already in production and/or in transit.

- The Secretary should exempt traceable, non-PRC supply of ingots, wafers, and cells from trusted allies and partners from any polysilicon 232 tariffs imposed in order to meet the needs of U.S. manufacturers.

- The Secretary should ensure that any polysilicon 232 tariffs apply only to the polysilicon content of a product and that the non-polysilicon content of a product only remains subject to reciprocal tariffs or other applicable duties, such that the 232 tariffs do not stack on other tariffs.

- The Secretary should explore the use of duty drawbacks or a similar "deduction" mechanism for imported polysilicon and derivative products that are then exported to certain allies and partners that are critical to U.S. defense and energy supply chains or sold domestically.

Gather and Rely on Real-Time Data and Industry Consultation to Achieve Stated Objectives

- Similar to the periodic review of financial sanctions conducted by the U.S. Department of the Treasury, Commerce should consider conducting similar reviews within set time frames for the suite of 232 and other tariffs—particularly those with cross-cutting sectoral impacts—to determine if they are accomplishing stated goals and modifying or calibrating as appropriate to achieve those goals.

- The Department has capacity within the International Trade Administration's Supply Chain Center, such as the SCALE tool, that should be employed alongside resources and activities ongoing at other agencies such as the Department of Energy's Office of Manufacturing and Energy Supply Chain with the findings briefed to industry on regular intervals to help illuminate areas that the private sector can continue to direct investment and attention to.

- Given the complexities in the U.S. solar manufacturing supply chain, the U.S. Clean Energy Organizations urge Commerce to engage with U.S. stakeholders at all levels of the supply chain during its investigation to ensure that the final recommendations clearly reflect a strategic vision for how to incentivize various levels of the supply chain without harming U.S. manufacturing efforts. This consultation could be particularly helpful with respect to tariffs which, if deployed without careful consideration and monitoring, can have unintended consequences that could undermine the development of the necessary commercial ecosystem U.S. solar manufacturing efforts will need to thrive.

Seek New or Utilize Existing U.S. Government Authorities to Offset PRC Advantages

- Strong consideration should be given to the use of existing government mechanisms to support U.S. domestic manufacturing, particularly when offtake of the critical material needs to be supported to ensure that investors can be guaranteed an adequate return on their investment. The Secretary should explore the use of the National Defense Stockpile, Defense Production Act Title VII, and others to promote offtake agreements that can help to mitigate PRC price manipulation. For example, agreements can be structured where the government pays the difference if polysilicon prices erode due to demonstrable predatory pricing or other factors.

- Establishment of a new federal coordinating mechanism or authority that could take on more risk and earn lower than market returns (low- or no-interest financing) to invest in U.S. polysilicon manufacturers (as well as other similar commodity sectors, such as critical minerals, etc.). Such an entity could support competitiveness and align incentives across agencies to identify bottlenecks and serve as a "one-stop shop" for various domestic industrial incentives, permitting support, and other tools and resources.

- Pursue permitting reform through Congress that provides for durable, bipartisan statutory authorities that appropriately expedite the permitting of domestic manufacturing facilities, including for polysilicon, in conjunction with existing tax policies.

International Collaboration and Engagement

- Development of a strategic polysilicon partnership effort with key trade partners. A model to be examined is the Department of State's Minerals Security Partnership, and the corresponding Minerals Investment Network for Vital Energy Security and Transition, which is a public-private effort to foster collaboration on high-standard development and investment in critical minerals.

- Increasing resources for the Export-Import Bank of the United States ("EXIM") and the U.S. International Development Finance Corporation and for the Administration to include incentives for domestically produced solar products in EXIM's financing terms.

- Use the ongoing negotiations with foreign nations on bilateral trade agreements to increase market demand for U.S.-made polysilicon and derivative products as well as to pursue cooperation on traceability and supply chain security.

Conclusion

ACORE, SEIA, and ACP strongly support increasing domestic production of solar-grade polysilicon. However, at present there are numerous tariff and import restrictions that have not yielded sufficient progress regarding domestic production, which is dependent on high-capacity utilization rates to achieve necessary economies of scale and reduced cost efficiencies which, in turn, is dependent on a strong, stable, domestic solar manufacturing industry and demand for solar energy generation.

Additional Section 232 tariffs on polysilicon derivative products will raise costs, delay infrastructure modernization, and reduce grid resilience. BIS should build on existing tariff and import restriction policies by aligning these existing policies with new and more deliberately applied programs that will advance our energy security, national defense and manufacturing industrial base, and technology goals.

ACORE, SEIA, and ACP appreciate the consideration of our comments and respectfully request that BIS prioritize national security and policy certainty.

Should you have any questions about this submission, please contact –

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