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Section 232 National Security Investigation of Imports of Polysilicon and Its Derivatives

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AUTHORS

Jack Burnham
Research Analyst, FDD's China Program

Craig Singleton
Senior Director and Senior Fellow, FDD's China Program

Mark Montgomery
Senior Director, FDD's Center on Cyber and Technology Innovation

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Introduction

China has aggressively sought to expand its influence within the polysilicon market. Ultra-pure polysilicon is the foundation for advanced semiconductors, serving as the starting point for producing silicon wafers, which are then used as the basis for producing integrated circuits.[1] Polysilicon is also a foundational material in producing solar cells, forming the core of photovoltaic panels that convert sunlight into electricity.[2]

Polysilicon is critical for U.S. national security, providing the computing power necessary to maintain the lethality of American warfighters and the energy required to drive advances in military-grade artificial intelligence (AI). These features also underpin the importance of a strong domestic refining capacity to maintain the security of the polysilicon supply chain, particularly for the Department of Defense's (DoD) Trusted Foundry program, which provides advanced chips to U.S. forces.

China has attempted to dominate the polysilicon market, strategically undercutting U.S. producers through a combination of unfair market practices and forced labor. Seeking to become a leader in semiconductors and clean energy, Beijing has directed significant subsidies towards developing its domestic industry, effectively engineered demand to encourage over-production and price fluctuations, and pursued consolidation to enhance its firms' global market power. China's polysilicon industry is also deeply integrated into the Chinese Communist Party's (CCP) efforts to prosecute a genocide within Xinjiang, with major Chinese producers being complicit in forced labor violations.

In pursuing its investigation, the Bureau of Industry and Security (BIS) should address the national security implications of Chinese polysilicon imports, ensuring that the United States can protect its most crucial supply chains from Chinese interference while strengthening the domestic polysilicon industry.

This comment will provide further detail of the threat posed by Chinese involvement in the U.S. polysilicon sector.

Overview of the Threat From Polysilicon Imports Sourced From Foreign Adversaries (the People's Republic of China)

China's growing dominance of the global polysilicon market directly threatens America's defense industrial base (DIB), particularly DoD's Trusted Foundry program and other defense-adjacent industries. Semiconductors are critical to military modernization — a single F-35 fighter likely has tens of thousands of chips integrated into its hardware, while military-grade AI models often run on hundreds of thousands.[3]

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[1] S.C. Bhatia, "Solar Devices," *Advanced Renewable Energy Systems*, 2014. (https://www.sciencedirect.com/science/article/abs/pii/B9781782422693500036)

[2] Aarsh Patel, Iradat Hussain Mafat, Rajat Saxena, "Passive Thermal Management of PV Panels for Enhanced Performance Using PCM," *Handbook of Thermal Management Systems*, 2023. (https://www.sciencedirect.com/science/article/pii/B9780443190179000234)

[3] Kris Osborn, "The F-35 Stealth Fighter Is A 'Flying Computer' In The Sky," *19Forty-Five*, July 30, 2023. (https://www.19fortyfive.com/2023/07/the-f-35-stealth-fighter-is-flying-computer-in-the-sky); Ashley Capoot,

These semiconductors are often produced via the DoD's Trusted Foundry program, which is intended to produce advanced military-grade chips within a secure environment.[4] While the program produces few advanced chips relative to commercial alternatives, the Trusted Foundry program is essential for securing the nation's DIB. The program ensures the security of advanced semiconductors, such as radiation-hardened chips used in satellite communications, ultra-high performance mobile devices, and other critical systems deployed by American forces and the intelligence community.[5]

Major firms have become more reliant on industrial robotics systems that run on a combination of high- and low-end chips to produce artillery rounds or launch ships.[6] This trend will likely accelerate as the demand for traditional munitions rises in concert with defense spending, and as major weapons systems become more sophisticated.

The continued integration of AI into military equipment, manufacturing, and command and control systems is also driving demand for high-end chips, just as it is in the private sector. This trend will likely extend to a variety of common military equipment, from rifles to drones.[7]

The growth in AI deployment will also put significant pressure on America's electricity grid. Electricity utilities have been able to meet growing demand in part through the rapid deployment of solar cells.[8] Companies such as Meta, along with energy providers such as Entergy, have relied on a combination of gas-fired plants and large-scale solar arrays to construct expansive data centers that contribute to American economic and national security.[9]

Ashley Capoot, "Anthropic, Google, OpenAI and xAI granted up to $200 Million for AI work from Defense Department," *CNBC*, July 14, 2025. (https://www.cnbc.com/2025/07/14/anthropic-google-openai-xai-granted-up-to-200-million-from-dod.html)

[4] "Trusted Supplier Program," Trusted Access Program Office. Accessed July 25, 2025. (https://www.acq.osd.mil/asds/dmea/tapo/trusted-supplier-programs.html)

[5] Jim McGregor, "GlobalFoundries' Trusted Foundry Status Helped Secure CHIPS Act Investment," *Forbes*, March 18, 2024. (https://www.forbes.com/sites/tiriasresearch/2024/03/18/globalfoundries-trusted-foundry-status-helped-secure-chips-act-investment)

[6] Meghann Myers, "Army expects to make more than a million artillery shells next year," *Defense One*, June 17, 2025. (https://www.defenseone.com/defense-systems/2025/06/army-expects-make-more-million-artillery-shells-next-year/406132/); Mark Bowden, "The Crumbling Foundation Of America's Military," *The Atlantic*, December 17, 2024. (https://www.theatlantic.com/politics/archive/2024/12/weapons-production-munitions-shortfall-ukraine-democracy/680867); Jane Thoning Callesen, "How robotics and AI are reshaping heavy industry by automating the un-automatable," *World Economic Forum*, May 20, 2025. (https://www.weforum.org/stories/2025/05/robotics-heavy-industry-automation)

[7] Mark Montgomery, "America needs to lead in drone warfare," *Foundation for Defense of Democracies*, May 13, 2024. (https://www.fdd.org/analysis/2024/05/13/america-needs-to-lead-in-drone-warfare/); Gordon Cooke, "Magic Bullets: The Future of Artificial Intelligence in Weapons Systems," *United States Army*, June 11, 2019. (https://www.army.mil/article/223026/magic_bullets_the_future_of_artificial_intelligence_in_weapons_systems).

[8] Harry Krejsa and Mark Montgomery, "AI Power Demand Is Remaking Our Energy Ecosystem – While Painting a Target on Its Back," *Foundation for Defense of Democracies*, April 14, 2025. (https://www.fdd.org/analysis/op_eds/2025/04/14/ai-power-demand-is-remaking-our-energy-ecosystem-while-painting-a-target-on-its-back)

[9] Scott Cohn, "To land Meta's massive $10 billion data center, Louisiana pulled out all the stops. Will it be worth it?" *CNBC*, June 25, 2025. (https://www.cnbc.com/2025/06/25/meta-massive-data-center-louisiana-cost-jobs-energy-use.html)

China Relies on Anti-Competitive Market Practices to Secure an Advantage in Polysilicon Exports

China's unprecedented growth within the global polysilicon market emerged as nearly a direct result of Beijing's efforts to dominate the global solar cell and semiconductor markets. Beginning with the 11th Five Year Plan in 2006, which prioritized the country's clean energy industry, both central and provincial governments poured investments into polysilicon research and production, including industrial parks, start-ups, and development mechanisms.[10] Along with allowing Chinese firms to gain significant market share within the solar industry, these investments engineered a thriving demand signal for Chinese polysilicon producers, easing the burden of high start-up costs.[11]

Beijing's initial subsidization continues to distort the global price of polysilicon, placing American producers at a distinct competitive disadvantage. Initially, Chinese firms held low global market share due to their lack of technical sophistication. Today, firms such as Tongwei Co. Ltd. and Xinjiang Daqo New Energy Co. Ltd. (Daqo) control roughly 93 percent of the global market and 80 percent of global output.[12] This dominance, and subsequent overproduction, has contributed to internal price wars, leading to price fluctuations that hamper the development of U.S. markets.[13] This growth within the polysilicon industry has also allowed Chinese firms to gain greater market share within the semiconductor supply chain, placing U.S. access at risk in the event of a crisis.

Caught amid a declining domestic economy and a sharp deflationary spiral, the CCP has worked to end price wars and nominally encourage consolidation within key sectors such as clean energy.[14] This push has influenced the polysilicon industry, which has undergone several rounds of mergers and buyouts as prices have fluctuated over the past several years — major producers such as Tongwei and GCL Technology Holdings have unveiled plans to purchase excess factory

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[10] State Council of the People's Republic of China, "中华人民共和国国民经济和社会发展第十一个五年 [11th Five-Year Plan (2006-2010) for National Economic and Social Development]," 2006. (https://policy.asiapacificenergy.org/sites/default/files/11th%20Five-Year%20Plan%20%282006-2010%29%20for%20National%20Economic%20and%20Social%20Development%20%28EN%29.pdf); Emily Feng, "How Did China Become the World's Dominant Polysilicon Producer?" *NPR*, July 6, 2021. (https://www.npr.org/2021/07/06/1013266774/how-did-china-become-the-worlds-dominant-polysilicon-producer)

[11] Emily Feng, "How Did China Become the World's Dominant Polysilicon Producer?" *NPR*, July 6, 2021. (https://www.npr.org/2021/07/06/1013266774/how-did-china-become-the-worlds-dominant-polysilicon-producer)

[12] "Special Report on Solar PV Global Supply Chains," *International Energy Agency*, July 2022. (https://www.iea.org/reports/solar-pv-global-supply-chains); Emily Feng, "How Did China Become the World's Dominant Polysilicon Producer?" *NPR*, July 6, 2021. (https://www.npr.org/2021/07/06/1013266774/how-did-china-become-the-worlds-dominant-polysilicon-producer)

[13] Luo Guoping and Kelsey Cheng, "China's polysilicon majors plan to bail out rest of glut-stricken industry," *Nikkei Asia*, July 21, 2025. (https://asia.nikkei.com/Spotlight/Caixin/China-s-polysilicon-majors-plan-to-bail-out-rest-of-glut-stricken-industry)

[14] Tu Lei, "China releases draft law amendment to stop 'rat race-style' market competition," *Global Times*, July 24, 2025. (https://www.globaltimes.cn/page/202507/1339210.shtml); Daisuke Wakabayashi, "China's Problem With Competition: There's Too Much of It," *New York Times*, July 22, 2025. (https://www.nytimes.com/2025/07/22/business/china-involution-competition-deflation.html)

capacity and purchase competitors' debt.[15] These major manufacturers are seeking to purchase smaller competitors to gain sufficient market share to manage falling prices. While these efforts continue, consolidation among Chinese competitors will likely have a deleterious effect on American firms by offering greater opportunities to engage in uncompetitive cooperation and unduly influence global prices.

China's Polysilicon Industry Relies on Forced Labor From the Xinjiang Uyghur Autonomous Region (Xinjiang)

China's polysilicon industry is concentrated within Xinjiang, which is the center of Beijing's efforts to perpetrate a genocide of the Uyghur ethnic minority. Beginning in the mid-2000s, Beijing adopted a "go west" policy within its overall industrial development planning cycle. Incentives led major domestic manufacturers and other industrial sectors to relocate to western China to drive regional economic development and prevent greater environmental damage on the country's more populated east coast.[16] Although most Chinese semiconductor foundries are in the east, both Tongwei and Daqo have a large presence in western China, where provinces have offered fewer environmental regulations, low-cost energy and water, and specialized industrial subsidies.[17]

This economic shift is irrevocably bound to Beijing's persecution and genocide of the Uyghurs, an ethnic minority largely concentrated within the region. Though Beijing has targeted Uyghurs since the mid-1950s due to anti-Han and separatist violence, the CCP has steadily increased its repressive apparatus within Xinjiang, seeking to both cement political control over the territory and remove threats to the Party's broader cultural project of achieving the "Chinese dream."[18] This effort has encompassed a range of genocidal acts, including mass detention, psychological and physical torture, heightened surveillance, and forced labor across a range of industries.[19]

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[15] Luo Guoping and Kelsey Cheng, "China's polysilicon majors plan to bail out rest of glut-stricken industry," *Nikkei Asia*, July 21, 2025. (https://asia.nikkei.com/Spotlight/Caixin/China-s-polysilicon-majors-plan-to-bail-out-rest-of-glut-stricken-industry)

[16] "New five-year plan brings hope to China's west," *State Council of the People's Republic of China*, December 27, 2026. (https://english.www.gov.cn/premier/news/2016/12/27/content_281475526349906.htm); Judy Hua and Joy Leung, "China's 'Go West' policy has mixed result," *Reuters*, August 9, 2007. (https://www.reuters.com/article/world/chinas-go-west-policy-has-mixed-result-idUSNOA241878)

[17] Carrie Xiao, "Tongwei plans US$879 million silicon production facility in China," *PVTech*, February 13, 2023. (https://www.pv-tech.org/tongwei-plans-us879-million-silicon-production-facility-in-china/); "A Xinjiang Solar Giant Breaks Ranks to Try and Woo the West," *Bloomberg News*, May 16, 2021. (https://www.bloomberg.com/news/features/2021-05-16/xinjiang-s-daqo-factory-opens-doors-to-counter-forced-labor-claims)

[18] "Uyghur Genocide and Concentrated Reeducation Camps in the Xinjiang Uyghur Autonomous Region of the People's Republic of China," Office of the Director of National Intelligence, October 2024. (https://www.dni.gov/files/ODNI/documents/assessments/NIC-Unclassified-Report-Uyghur-Genocide-Concentrated-Reeducation-Camps-China-Oct2024.pdf); Nicholas Bequelin, "The Dark Side of the China Dream: Erasing Ethnic Identity," *The Diplomat*, August 17, 2018. (https://thediplomat.com/2018/08/the-dark-side-of-the-china-dream-erasing-ethnic-identity)

[19] Jack Burnham, "'The Cruelty of Forced Labor': U.S. Bans Imports From 37 Chinese Firms Implicated in Uyghur Genocide," *Foundation for Defense of Democracies*, January 16, 2025. (https://www.fdd.org/analysis/2025/01/16/the-cruelty-of-forced-labor-u-s-bans-imports-from-37-chinese-firms-implicated-in-uyghur-genocide)

These practices extend to the polysilicon sector, which has previously been the target of U.S. action against forced labor.[20] Despite its public denials, Daqo continues to source polysilicon components from Xinjiang, raising the likelihood that its supply chains contain products manufactured using forced labor.[21] U.S. regulators have also targeted other major solar cell manufacturers, such as JA Solar, due to their significant exposure to Xinjiang's polysilicon supply chains.[22] As Chinese polysilicon firms extend their global market share, U.S. customers remain in double jeopardy — potentially contributing to the CCP's ongoing genocide and remaining at heightened risk of being harmed by the Uyghur Forced Labor Prevention Act, which imposes trade penalties on products sourced from Xinjiang.

Conclusion

China's reach into the U.S. polysilicon sector poses a clear and present danger to U.S. national security. Over the course of more than a decade, Chinese firms have benefited from substantial subsidies, engaged in non-market competition, pursued consolidation, and relied on forced labor to enhance their leverage over the global polysilicon market. BIS's investigation into the national security implications of polysilicon imports is timely and will provide a strong foundation for future trade and non-trade-based remedies.

Thank you for considering our comments. We look forward to seeing how our input is incorporated into this investigation.

[20] Ana Swanson and Ivan Penn, "Solar Supply Chain Grows More Opaque Amid Human Rights Concerns," *New York Times*, August 1, 2023. (https://www.nytimes.com/2023/08/01/business/economy/solar-xinjiang-china-report.html)

[21] Zhang Dan, "Xinjiang solar firm debunks 'forced labor' lies by hosting Western media, analysts," *Global Times*, May 12, 2021. (https://www.globaltimes.cn/page/202105/1223323.shtml); "DHS Will Now Restrict Goods from Over 100 PRC-Based Companies from Entering the United States Due to Forced Labor Practices," Department of Homeland Security, November 22, 2024. (https://www.dhs.gov/archive/news/2024/11/22/dhs-will-now-restrict-goods-over-100-prc-based-companies-entering-united-states-due)

[22] "DHS Will Now Restrict Goods from Over 100 PRC-Based Companies from Entering the United States Due to Forced Labor Practices," Department of Homeland Security, November 22, 2024. (https://www.dhs.gov/archive/news/2024/11/22/dhs-will-now-restrict-goods-over-100-prc-based-companies-entering-united-states-due); Jack Burnham, "'The Cruelty of Forced Labor': U.S. Bans Imports from 37 Chinese Firms Implicated in Uyghur Genocide," *Foundation for Defense of Democracies*, January 16, 2025. (https://www.fdd.org/analysis/2025/01/16/the-cruelty-of-forced-labor-u-s-bans-imports-from-37-chinese-firms-implicated-in-uyghur-genocide)