

Office of the United States Trade Representative

China's Acts, Policies, and Practices Related to Targeting of the Semiconductor Industry for Dominance

PREPARED BY:

RADM (Ret.) Mark Montgomery
*Senior Director of the Center on Cyber
and Technology Innovation at the
Foundation for Defense of Democracies*

Commander (Ret.) Isaac Harris
*Adjunct Fellow at the
Foundation for Defense of Democracies*

**Washington, DC
January 31, 2025**

January 31, 2025

The Honorable Juan Millán
Acting United States Trade Representative
Office of the United States Trade Representative
600 17th Street NW
Washington, DC 20508

**RE: Initiation of Section 301 Investigation; Hearing; and Request for Public Comments:
China's Acts, Policies, and Practices Related to Targeting of the Semiconductor Industry
for Dominance (Docket Nos. USTR-2024-0024 and USTR-2024-0025)**

Dear Acting United States Trade Representative Millán:

We are writing to encourage the Office of the U.S. Trade Representative (USTR) to fully and expeditiously complete the Section 301 Investigation of China's Acts, Policies, and Practices Related to Targeting of the Semiconductor Industry for Dominance (Docket Nos. USTR-2024-0024 and USTR-2024-0025) initiated on Dec. 23, 2024, and, as directed by the findings, to implement appropriate protections to prevent the People's Republic of China (PRC) from destabilizing the United States' semiconductor and silicon carbide substrates (SiC) industries.

The USTR's notification of the initiation of the above-referenced investigation correctly states: "Evidence indicates that the People's Republic of China has adopted acts, policies, and practices related to targeting of the semiconductor industry for dominance."ⁱ

There is near unanimous consensus among U.S. industry experts, policymakers, and military leaders that the Chinese Communist Party (CCP) seeks to further develop its indigenous semiconductor manufacturing capabilities and achieve self-sufficiency with the end goal of controlling the global production of advanced semiconductors. Through state subsidies, a national "military-civil fusion" policy, and the exploitation of dual-use technologies, the PRC has and continues to subvert competitors and advance its dominance of the semiconductor market.

Last year, Rep. John Moolenaar (R-MI), chairman of the U.S. House Select Committee on Strategic Competition between the United States and the CCP, succinctly summarized the CCP's "go-to" strategy: "Building government subsidized monopolies ... then dumping overcapacity on global markets to tank prices and drive competitors out of the market, all in the service of the CCP's interest."ⁱⁱ His assessment is fair and captures the essence of the CCP's approach.

While much attention and policy have rightfully been focused on the PRC's advances in semiconductor production, the Chinese government is quietly amassing an advantage over the United States in the manufacturing of silicon carbide (SiC) wafers, which poses an equally serious threat to U.S. national security. *We ask that the USTR make the PRC's manipulation of SiC wafer production a central part of this investigation.*

Silicon Carbide (SiC) Wafers

SiC wafers combine silicon and carbon to create a base on which semiconductors are built. The dynamic properties of silicon carbide allow it to form several different types of semiconductors, and SiC wafers' increased efficiency, thermal conductivity, and operation at high voltages and frequencies have made them the material of choice for high-power applications, including electric vehicles, military systems, and power grids.ⁱⁱⁱ These wafers have proven indispensable in military systems and equipment that must operate in demanding conditions. Missile defenses, electronic warfare, and satellites are just a few of the applications that rely on semiconductors made with SiC wafers.

Examples of SiC wafer military applications include:

- The Aegis Combat System
- Terminal High Altitude Area Defense
- Ground-Based Midcourse Defense
- The Patriot Missile Defense System
- Hypersonic Glide Vehicle
- Long-Range Hypersonic Weapon

During our Naval careers, we saw firsthand how weapons systems rely on technology that must perform in severe conditions. Today, our Navy's most critical maritime warfighting capability, the Aegis Combat System on the Arleigh Burke-class destroyers, engages missiles and drones daily in the Red Sea. The Aegis system utilizes SPY-6,^{iv} the world's most advanced at-sea radar system. SPY-6 leverages SiC for its gallium nitride modules to enhance detection range and target identification to successfully intercept ballistic and cruise missiles. Without access to SiC, we cannot use gallium nitride, which will leave our sailors vulnerable to enemy missiles.

China's subsidized overcapacity in SiC substrate and wafer manufacturing capacity, its support for further growth in capacity, and its growing dominance over the supply chain for SiC wafers threaten U.S. national security. Without immediate action, U.S. SiC wafer production and supply chains are in imminent danger.

An Information Technology and Innovation Foundation report last year notes: "China is likely to become an ever-more significant player in this sector of the market, but its basis for competitive advantage here is likely to be more predicated on massive scale (supported by large, state-driven industrial subsidization) that facilitates price-driven, not innovation-driven, competition."^v

Over the last two years, Chinese companies have leveraged significant government subsidies to move China's domestic SiC industry from a largely inferior R&D and manufacturing position to a significant and sophisticated manufacturer. Chinese companies are now able to make SiC wafers comparable in quality and application to those produced by manufacturers in the United States and other advanced countries.

Through state support, Chinese SiC wafer producers have been able to price their products aggressively, even below manufacturing costs, thereby undercutting competitors. DIGITIMES Asia reported in October that "2024 saw a significant shift where Chinese manufacturers dramatically ramped up production, resulting in a collapse of prices."^{vi} The same month, Trend Force reported that the price of mainstream six-inch SiC substrates fell nearly 30 percent to \$500

by mid-year, “approaching the production cost of Chinese manufacturers,” and that by Q4, prices dropped to as low as \$400, “creating financial pressure for most manufacturers.”^{vii}

This strategy appears to be pulled from the same “market capture” playbook the CCP employed to gain an advantage in the production of LEDs, solar panels, small commercial drones, and LiDar systems — but with potentially more dire consequences — by: Leveraging state subsidies, undercutting the competition, and flooding the market with cheaper products. By snuffing out free market SiC wafer competition, the CCP can further tighten its grip on the advanced semiconductor market, effectively ensuring that U.S. defense systems become even more reliant on China for their supply chain.

Hold the CCP and Its Proxies Accountable

With the backing of the government, Chinese companies enjoy a competitive advantage over SiC wafer manufacturers in the United States and other democratic nations. The CCP is using the state’s deep pockets to snuff out competitors and gain a monopoly over advanced semiconductor manufacturing — an outcome that, if permitted, could compromise U.S. national defense systems. And it is happening right now, right under our noses.

We encourage the USTR to conduct a full and rigorous investigation of the CCP’s manipulation of the SiC wafer market and production and implement tariffs and trade restrictions on Chinese-made products. Only such actions will deter the CCP’s ambitions and level the playing field for U.S.-based manufacturers — which is necessary to ensure the integrity of our national defenses and protect U.S. national security.

Thank you for your consideration.

Respectfully,



Mark Montgomery
Rear Admiral (Ret), U.S. Navy
Senior Fellow
Foundation for Defense of Democracies



Isaac Harris
Commander (Ret), U.S. Navy
Adjunct Fellow
Foundation for Defense of Democracies

ⁱ [https://ustr.gov/sites/default/files/USTR%20FRN%20301%20CN%20Semiconductors%20\(fin\).pdf](https://ustr.gov/sites/default/files/USTR%20FRN%20301%20CN%20Semiconductors%20(fin).pdf)

ⁱⁱ <https://selectcommitteeontheccp.house.gov/media/press-releases/media-package-select-committee-ccp-holds-hearing-high-tech-heavy-steel>

ⁱⁱⁱ <https://www.mckinsey.com/industries/semiconductors/our-insights/managing-uncertainty-in-the-silicon-carbide-wafer-market>

^{iv} <https://www.navsea.navy.mil/Portals/103/Documents/Exhibits/SNA-AboveWaterSensors.pdf?ver=2017-01-12-142032-183&utm>

^v <https://itif.org/publications/2024/08/19/how-innovative-is-china-in-semiconductors/>

vi <https://www.prnewswire.com/news-releases/sic-prices-plunge-as-chinese-capacity-soars-reshaping-semiconductor-landscape-302288377.html>

vii <https://www.trendforce.com/news/2024/10/23/news-silicon-carbide-prices-drop-by-nearly-30/#:~:text=Industry%20reports%20indicate%20that%20since%20the%20beginning,approaching%20the%20production%20cost%20of%20Chinese%20manufacturers.>