

Export restrictions on photovoltaic crystalline silicon technology

Article Overview

Export restrictions on crystalline silicon photovoltaic (c-Si PV) technology are currently shaped by U.S. countervailing and antidumping duties on imports and potential Chinese controls on PV production equipment.

U.S. Countervailing and Antidumping Measures

The United States has actively imposed countervailing duties (CVDs) and antidumping duties (ADs) on c-Si solar cells and modules from multiple countries to protect domestic manufacturers. In 2025, the U.S. Department of Commerce determined that solar cells from Cambodia, Malaysia, Thailand, and Vietnam received countervailable subsidies, leading to duties on imports from these countries . Similarly, preliminary CVD investigations in 2026 targeted India, Indonesia, and Laos, with final determinations expected in July 2026 . These measures aim to address material injury to U.S. solar manufacturers caused by subsidized imports and can significantly affect the global supply chain by increasing costs for imported modules.

Chinese Export Controls

China, the largest global supplier of solar PV technology, has considered curbing exports of certain PV production equipment and high-efficiency silicon wafer technologies. The Chinese Ministry of Commerce and Ministry of Science and Technology proposed revisions to the Catalogue of Technologies Prohibited and Restricted for Export, including items such as large-size silicon wafers, black silicon, ultra-high-efficiency ingot casting, and polycrystalline technologies . While no formal ban has been published, the move is intended to maintain China's dominance in wafer production technology, which is critical because Chinese companies produce nearly all wire saws and CZ-pullers used in monocrystalline ingot and wafer manufacturing . Such restrictions could limit the ability of foreign manufacturers to access advanced PV production equipment, potentially slowing deployment outside China.

Implications for the Global PV Market

Crystalline silicon remains the dominant PV technology, accounting for over 95% of the market and offering efficiencies typically between 17% and 22% for mainstream modules . Export restrictions, whether through U.S. trade duties or Chinese equipment controls, can increase costs, disrupt supply chains, and incentivize local production in the U.S., India, and Europe. These measures also encourage diversification of the PV supply chain and investment in domestic manufacturing capabilities to reduce dependence on Chinese technology.

Summary

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- o U.S. export restrictions: Countervailing and antidumping duties on c-Si solar cells from multiple countries to protect domestic industry .
- o Chinese potential restrictions: Export controls on PV production equipment and advanced wafer technologies to maintain global market dominance .
- o Market impact: Higher costs for imported modules, supply chain adjustments, and accelerated local manufacturing initiatives . These policies collectively shape the international trade landscape for crystalline silicon PV technology, influencing both pricing and deployment speed of solar energy worldwide.

The merchandise covered by this order is crystalline silicon photovoltaic cells, and modules, laminates and/or panels consisting of

BEIJING/LOS ANGELES, April 15 (Reuters) - Chinese officials have held initial talks with providers of equipment to make solar

The Dept. of Commerce has determined that countervailable duties have been provided to certain crystalline silicon

The Scholl Chair team analyzes the latest update to U.S. advanced semiconductor export controls, which come a

This has the potential to substantially improve efficiencies as its production requires much less energy than crystalline

The U.S. Department of Commerce (Commerce) determines that crystalline silicon photovoltaic cells, whether or not

Crystalline Silicon Photovoltaic Cells (Whether or not Partially or Fully Assembled into Other Products)
Investigation No. TA-201-75

Fact sheet for the preliminary determinations of the CVD investigations of Crystalline Silicon Photovoltaic Cells (Solar Cells) from

Introduction Since 2018, the U.S. government has sought to strengthen U.S. export controls to restrict the PRC's

Recent actions related to clean energy technologies: December 2014: DOC issued affirmative final determinations on

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In its original determinations and its first five-year review determinations, the Commission defined a single Domestic

The five-year (sunset) reviews concerning Crystalline Silicon Photovoltaic Products from China and Taiwan were

Tandem solar cells consisting of crystalline silicon and perovskite or other cell material, including but not limited to

SUMMARY: The Commission hereby gives notice that it has instituted reviews pursuant to the Tariff Act of 1930 ("the

China imposed stringent export controls on two critical semiconductor materials,

Background and coverage Two main technologies currently dominate global solar PV markets and supply chains: crystalline silicon

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