

## U.S. Export Controls and China

Since 2018, Congress and the executive branch have revised—through legislation, regulation, and licensing practices—the U.S. export control system that regulates dual-use exports (goods and technology that may have both civilian and military uses). Much of the legislative reform has focused on controlling emerging and foundational technologies, strengthening other technology controls and licensing practices, engaging multilaterally to ensure U.S. controls are effective, and considering the impact of controls on the U.S. economy, including the foreign availability of U.S. products subject to control. Many of these changes were efforts to address concerns about the People’s Republic of China’s (PRC or China) pursuit of civilian and military leadership in advanced technologies through U.S. commercial ties. Congress plays a key role in overseeing the reforms it enacted and shaping the U.S. export control regime to address U.S. national security and foreign policy concerns, including those posed by China.

### China’s Industrial Policies

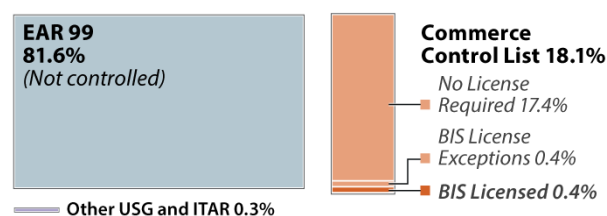
China’s state-led industrial policies, such as *Made in China 2025* (*MIC 2025*), seek to create competitive advantages for China in strategic industries, in part by obtaining technology from U.S. and foreign firms. *MIC 2025* aims to establish China’s leadership in emerging technologies critical to future commercial, government, and military capabilities. Priority areas include advanced manufacturing, aerospace, artificial intelligence, information technology, new materials, robotics, and semiconductors. China’s military-civil fusion (MCF) program also seeks to leverage *MIC 2025* technological advancements for military development. Some experts say that China’s approach blurs commercial and military distinctions and may challenge the U.S. export control regime’s ability to distinguish between military and civilian end use and end users. China’s policies in strategic sectors often require a PRC partner, frequently state-tied, to own or otherwise control U.S. technology that is transferred to China, potentially increasing risks that U.S. technology could support China’s military.

### U.S. Dual-Use Export Controls

The Export Control Reform Act of 2018 (ECRA) (P.L. 115-232) reestablished nonemergency authority for the President to control dual-use exports for national security and foreign policy reasons and to coordinate with multilateral export control regimes, and provided policy requirements for setting controls. The Bureau of Industry and Security (BIS) of the Department of Commerce administers dual-use export controls and chairs an interagency process that includes the Departments of Defense (DOD), State, and Energy. BIS administers these controls through the Export Administration Regulations (EAR, 15 C.F.R. 730 *et seq.*), which includes the Commerce Control List (CCL) of dual-use technologies subject to controls. The EAR sets licensing policy for

specific destinations, end use, and end user controls. On the CCL, national security (NS) controlled items are on the Wassenaar Arrangement’s multilateral control list. The EAR presumes denial for license applications of NS items that would make a direct and significant contribution to China’s military. Separate statutes and regulations control nuclear materials and technology and defense articles and services. U.S. law has prohibited arms sales to China since 1989. Congress has also mandated a policy of denial for exports of satellite and space equipment to China.

**Figure 1. 2020 U.S. Exports to China and BIS Actions**



**Source:** CRS with reporting data from BIS.

**Note:** EAR99 items are subject to the EAR, but are not controlled. Percentages are based on the value of U.S. exports.

### U.S. Licensing Approach

The U.S. government only controls or restricts a small percentage of U.S. technology exports to China in practice. BIS has removed from the CCL or waived licensing requirements for much of U.S. technology trade to China since the 1990s as certain technologies have become more widely available globally and in response to U.S. business interests in the China market. Before new rules in May 2020, BIS waived license requirements for NS items destined for civilian end use in China in sectors such as aerospace, computing, and semiconductors. An estimated 18.1% of \$124.6 billion in U.S. exports to China in 2020 (\$22.6 billion) involved dual-use technologies on the CCL and subject to controls. BIS required licenses for 2.1%, or \$478 million of these CCL technology exports. Most CCL technology exports—97.9% or \$22.1 billion—went to China without a license. (**Figure 1**).

Separately, BIS reported that it reviewed \$112 billion in licenses for U.S. software and technology exports to China in 2020 and denied 2.2% (\$471 million). The \$112 billion in licenses in 2020 increased from \$6.9 billion in 2019; the increase might reflect licenses, including for EAR 99 items, required for PRC firms added to the EL since 2019. EAR 99 includes nonsensitive products and potentially sensitive technologies in light of China’s dual-use programs. ECRA called for a review of the CCL and EAR99 to determine whether some EAR99 technologies should be added to the CCL. In 2020, BIS denied three of 482 licenses to release U.S.-controlled technology and knowhow to PRC nationals.

## BIS Entity List

Since 2018, the U.S. government has increased use of the BIS Entity List (EL) to restrict some dual-use trade with China by placing certain PRC firms of concern on the list. The EL identifies persons involved, or with the potential to be involved, in activities contrary to U.S. national security or foreign policy interests. BIS typically requires a license for any U.S. export of EAR items to those listed. EL listings often presume an export denial, but licensing guidance—such as narrow or low technology thresholds, partial listing of firms, and case-by-case approval—appears to facilitate the export of some U.S. technology and CCL items to PRC firms on the EL. A lack of restrictions on 4G, 6G, cloud, and, until recently, undersea cable technologies has allowed Huawei to purchase U.S. technology. In 2020, Huawei sold its Honor 5G mobile business to the PRC government. BIS has not added Honor to the EL to extend Huawei restrictions to the firm. EL restrictions for China’s foundry, Semiconductor Manufacturing International Corporation (SMIC), apply to technology below 10 nanometers (nm), allowing trade at and above 14 nm to continue. In October 2021, the House Foreign Affairs Committee released BIS licensing data for Huawei and SMIC from November 2020 to April 2021. Much of it involved semiconductor technology: BIS approved 113 licenses for Huawei (\$61.4 billion); and returned 48 (\$29.8 billion) without action. BIS approved 188 licenses for SMIC (\$41.9 billion), and returned 17 (\$1.2 billion) without action.

In August 2020, BIS amended the foreign-direct product rule to restrict Huawei’s ability to acquire chips from any source using U.S.-controlled equipment or software, such as TSMC in Taiwan; other PRC firms are not restricted. In April 2021, BIS added PRC firm Pythium to the EL for the firm’s role in China’s hypersonic weapons program—BIS does not appear to restrict Pythium’s and other PRC firms’ use of U.S. open source technology platforms and U.S. software tools to design and test advanced chips for China’s strategic advanced computing programs. In December 2021, BIS added China’s Academy of Military Medical Sciences and eleven of its institutes to the EL; these controls may not pertain to U.S. research ties with China.

## Military-Tied Firms

In late 2020, BIS extended licensing requirements for PRC firms identified as military-end users; it presumed denial for certain, but not all, CCL exports to these firms. Many PRC military firms do not appear to be on the BIS military-end users list or the EL. The BIS lists include a subset of the PRC military firms that Congress requires DOD to identify in accordance with Section 1260H of the National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283). In some cases, BIS lists only parts of these firms.

## ECRA Reforms

ECRA has provisions—which impact U.S. dual-use exports to China—to reform or augment export control decision-making, licensing, and technology controls, including:

- Determining foreign availability by considering comparable quality in ascertaining whether a global alternative is comparable to a U.S. technology. Foreign availability determinations can affect decisions on whether to apply specific or general controls.

- Clarifying that existing U.S. controls apply to re-exports, regardless of the structure of the underlying transaction, including identifying and considering any foreign party to a license with a significant ownership interest. This requires more detail on ultimate end users and scrutiny of joint ventures. Additionally, after the U.S. government decision in June 2020 to no longer treat Hong Kong separately from China, BIS imposed new licensing conditions for U.S. exports to Hong Kong and re-exports from Hong Kong to mainland China.
- Requiring the President to create an interagency process to create controls on “emerging and foundational technologies” of concern—including through a review of the CCL—and regulate their release to foreign persons by, at a minimum, requiring an export license.
- Reviewing the interagency dispute resolution process and requiring BIS to work with DOD on commodity classifications to determine when a license is required.
- Adding a role for the Director of National Intelligence and considering the U.S. industrial base in setting controls and in licensing decisions.
- Defining dual-use to include law-enforcement applications. Relatedly, crime control equipment exports to China require a license. Concerns about China’s human rights abuses and surveillance activities have led to tighter scrutiny of these exports to China.

## Issues for Congress

Some Members have expressed concerns about a slow pace of implementing some of the reforms required by statute. For example, while BIS has initiated a rulemaking process for emerging technologies and proposed an approach for foundational technologies, it has established few new controls. This, some argue, could impede congressional reforms that expanded the authority of the Committee on Foreign Investment in the United States (CFIUS) to review PRC and other foreign investments in critical and emerging technologies below thresholds of foreign control. Issues for possible oversight or legislative action include:

- The status of ECRA implementation and whether the pace and scope of actions are sufficient without greater oversight or changes to the export control regime.
- The impact of the pace and scope of ECRA’s implementation on other congressional reforms like CFIUS.
- The global context of export controls and practices to ascertain whether to pursue more multilateral controls and reforms.
- The status of controlling emerging and existing technologies, and reforming the process for classification determinations and licensing decisions, including for escalated cases.
- The operating committee’s current voting structure and BIS’s role as chair in determining licensing decision outcomes.
- The level of congressional scrutiny of licensing decisions, justifications, waivers, and exceptions, and whether to pursue more frequent and regularized reporting to Congress to strengthen its oversight of export controls in practice.

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