

## **NEW EXPORT CONTROLS ON EMERGING TECHNOLOGIES – 30-DAY PUBLIC COMMENT PERIOD BEGINS**

To Our Clients and Friends:

On Monday, the Trump administration took the first step toward imposing new controls on the export of cutting-edge technologies. Pursuant to the Export Control Reform Act of 2018 ("ECRA"), the U.S. Department of Commerce's Bureau of Industry and Security ("BIS") published a request for the public's assistance in identifying "emerging technologies" essential for U.S. national security that should be subject to new export restrictions.<sup>[1]</sup> The advance notice of proposed rulemaking ("ANPRM") reiterates the general criteria for emerging technologies, provides a representative list of targeted technologies, and provides a 30-day period for comment on which technologies should be subject to these new controls.

In response to this notice, companies that operate in certain high technology sectors, such as biotechnology, artificial intelligence, computer processing, and advanced materials, should consider filing public comments and prepare for pending controls. These companies should start by identifying technologies they possess that are likely to be targeted for new export controls and gather important evidence on the efficacy of potential controls on these technologies. Companies likely to be affected should also consider the impact that tighter controls on the transfer of these technologies may have on their business operations. Additionally, U.S. businesses that engage with emerging technologies must be mindful of new CFIUS regulations that require such businesses to declare certain controlling and non-controlling foreign investments to CFIUS before the investment is made.

### **BACKGROUND**

On August 13, 2018, President Trump signed the *John S. McCain National Defense Authorization Act for Fiscal Year 2019* ("FY 2019 NDAA"), an omnibus bill to authorize defense spending that includes—among other measures—the Export Control Reform Act of 2018 ("ECRA").<sup>[2]</sup> In addition to placing the U.S. export control regime on firm statutory footing for the first time in decades, ECRA significantly expanded the President's authority to regulate and enforce export controls by requiring the Secretary of Commerce to establish controls on the export, re-export, or in-country transfer of "emerging or foundational technologies."<sup>[3]</sup>

ECRA was passed alongside the Foreign Investment Risk Review Modernization Act ("FIRRMA"), which reformed the CFIUS review process for inbound foreign investment.<sup>[4]</sup> As originally drafted, FIRRMA would have included outbound investments—such as joint ventures or licensing agreements—in the list of covered transactions subject to CFIUS review to limit the outflow of technology important to U.S. national security. This proposed provision was very controversial and was ultimately removed from the bill. Instead, the final version of the NDAA included ECRA, which granted BIS the authority

to work with the interagency group to identify and regulate the transfer of these emerging and foundational technologies.[5]

## **WHAT ARE EMERGING TECHNOLOGIES?**

ECRA does not offer a precise definition of the "emerging technologies" to be controlled by BIS. Instead, it offers criteria for BIS to consider when determining what technologies will fall within this area of BIS control. Importantly, the definition of "technology" itself in the context of export controls is well established. Such technology does not, for example, include end-items, commodities, or software. Instead, technology is the information, in tangible or intangible form, necessary for the development, production, or use of such goods or software.[6] Technology may include written or oral communications, blueprints, schematics, photographs, formulae, models, or information gained through mere visual inspection.[7] For example, speech recognition software would not be a technology and therefore would not be subject to these new controls. However, the source code for such software would be technology that could be considered "emerging," depending on the criteria BIS applies.

The ANPRM broadly describes emerging technologies as "those technologies essential to the national security of the United States that are not already subject to export controls under the Export Administration Regulations ("EAR") or the International Traffic in Arms Regulations ("ITAR")."[8] The ANPRM suggests that technologies will be considered "essential to the national security of the United States" if they "have potential conventional weapons, intelligence collection, weapons of mass destruction, or terrorist applications or could provide the United States with a qualitative military or intelligence advantage."[9]

In narrowing down which of these technologies will be subject to new export controls, BIS will also consider the development of emerging technologies abroad, the effect of unilateral export restrictions on U.S. technological development, and the ability of export controls to limit the spread of these emerging technologies in foreign countries. In making this assessment and further narrowing the category of affected technologies, BIS will consider information from a variety of interagency sources, as well as public information drawn from comments submitted in response to the ANPRM.

Although the ANPRM does not provide concrete examples of "emerging technologies," BIS does provide a list of technologies currently subject to limited controls that could be considered "emerging" and subject to new, broader controls. These include the following:

- (1) Biotechnology, such as:
  - (i) nanobiology;
  - (ii) synthetic biology;
  - (iii) genomic and genetic engineering; or
  - (iv) neurotech.

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(2) Artificial intelligence (AI) and machine learning technology, such as:

- (i) neural networks and deep learning (e.g., brain modelling, time series prediction, classification);
- (ii) evolution and genetic computation (e.g., genetic algorithms, genetic programming);
- (iii) reinforcement learning;
- (iv) computer vision (e.g., object recognition, image understanding);
- (v) expert systems (e.g., decision support systems, teaching systems);
- (vi) speech and audio processing (e.g., speech recognition and production);
- (vii) natural language processing (e.g., machine translation);
- (viii) planning (e.g., scheduling, game playing);
- (ix) audio and video manipulation technologies (e.g., voice cloning, deepfakes);
- (x) AI cloud technologies; or
- (xi) AI chipsets.

(3) Position, Navigation, and Timing (PNT) technology.

(4) Microprocessor technology, such as:

- (i) Systems-on-Chip (SoC); or
- (ii) Stacked Memory on Chip.

(5) Advanced computing technology, such as:

- (i) memory-centric logic.

(6) Data analytics technology, such as:

- (i) visualization;
- (ii) automated analysis algorithms; or
- (iii) context-aware computing.

(7) Quantum information and sensing technology, such as:

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- (i) quantum computing;
- (ii) quantum encryption; or
- (iii) quantum sensing.

(8) Logistics technology, such as:

- (i) mobile electric power;
- (ii) modeling and simulation;
- (iii) total asset visibility; or
- (iv) distribution-based Logistics Systems (DBLS).

(9) Additive manufacturing (e.g., 3D printing).

(10) Robotics such as:

- (i) micro-drone and micro-robotic systems;
- (ii) swarming technology;
- (iii) self-assembling robots;
- (iv) molecular robotics;
- (v) robot compliers; or
- (vi) smart Dust.

(11) Brain-computer interfaces, such as:

- (i) neural-controlled interfaces;
- (ii) mind-machine interfaces;
- (iii) direct neural interfaces; or
- (iv) brain-machine interfaces.

(12) Hypersonics, such as:

- (i) flight control algorithms;
- (ii) propulsion technologies;

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(iii) thermal protection systems; or

(iv) specialized materials (for structures, sensors, etc.).

(13) Advanced Materials, such as:

(i) adaptive camouflage;

(ii) functional textiles (e.g., advanced fiber and fabric technology); or

(iii) biomaterials.

(14) Advanced surveillance technologies, such as faceprint and voiceprint technologies.[10]

## **BIS REQUEST FOR COMMENT**

Along with a review of its mandate to regulate emerging technologies and a sample of several potentially affected industries, BIS specifically requested public comments on the following points:

- how the administration should define emerging technologies
- what the criteria should be for determining whether there are specific technologies within these general categories that are important to U.S. national security
- what sources the administration can refer to in order to identify emerging technologies
- what other general technology categories might be important to U.S. national security and warrant control
- information about the status of development of the listed technologies in the United States and other countries
- information about what impact the specific emerging technology controls would have on U.S. technological leadership, and
- suggestions for other approaches to identifying emerging technologies warranting controls.[11]

Comments on these issues are due to BIS by December 19, 2018—only thirty days after the publication of the ANPRM.

Critically, comments offered pursuant to this notice will be made public, and there is no express procedure for submitting redacted public comments and complete comments for the agency.

## **HOW TO RESPOND**

Companies potentially affected by these new controls should simultaneously begin preparing for public comments and for pending controls. The first step in this process should be the identification of potentially targeted technologies. Companies should work with in-house engineers, researchers, and product development personnel—as well as export control experts—to begin identifying technology that may be targeted for control.

Technologies currently controlled under the ITAR or broadly restricted by the EAR will not be included in the new category of "emerging technologies." Given the express limitations provided in ECRA, technologies produced outside of the United States are also unlikely to be targeted by the new controls, as unilateral U.S. export controls would do little to restrict the flow of these technologies. Once a company identifies such non-controlled technologies predominantly of U.S.-origin, it should evaluate the extent to which it shares or will share this technology with non-U.S. persons and the means by which it makes such transfers.

Having identified technology likely to be impacted by the new controls, companies should prepare public comments in response to the request posed in the ANPRM. For example, companies may wish to suggest a definition for emerging technologies, or a limiting principle for a potential definition, that is based on an evaluation of potentially affected technologies, market concerns, and BIS's policy objectives. Concrete evidence of foreign production of comparable technology, the likely impact on U.S. technological superiority of new controls, and the ability of new controls to limit the spread of emerging technologies abroad will also be particularly persuasive. Where possible, companies may also wish to differentiate their technology from comparable technology that may have conventional weapons, intelligence collection, weapons of mass destruction, or terrorist applications.

In addition to providing comments to BIS, companies should also begin preparing to operate under expanded export controls. Importantly, certain kinds of exports related to emerging technologies will not be subject to new licensing requirements. For example, the provision of technology associated with the sale or license of finished goods or software will not be subject to a new licensing requirement if the U.S. party to the transaction generally makes the finished items and associated technology available to its customers, distributors, and resellers (e.g., an operation manual exported along with controlled hardware).[12]

Similarly, the provision by a U.S. party of technology to a foreign supplier of goods or services to the U.S. party will not be restricted if the foreign supplier has no rights to exploit the technology contributed by the U.S. person other than to supply the procured goods or services.[13] For example, the provision of blueprints to a foreign manufacturer under these circumstances would not be subject to the new controls. Additionally, contribution by a U.S. person to an industry organization related to a standard or specification would not generally be subject to the new controls.[14]

However, companies should be mindful of the circumstances in which new controls will limit their business operations. For example, the new controls may limit operations under joint ventures or other cooperative arrangements where emerging technologies are currently exchanged. In addition, the new controls are likely to limit the availability of certain license exceptions that could be used to facilitate such cooperative arrangements. Cooperation with individuals and entities in countries subject to U.S.

arms embargos, such as China, are likely to be significantly curtailed, as BIS may effectively prohibit exports of emerging technologies to those countries.

With these potential impacts in mind, companies should begin evaluating how controls on targeted technologies will affect their operations.

## WHAT'S NEXT

BIS will evaluate public comments offered during the 30-day window provided by the ANPRM, along with additional public and classified information collected through the interagency process, to establish the criteria to be used to identify "emerging technologies" and related export controls. As a part of this process, it is likely that BIS will rely on some of its existing mechanisms for monitoring and regulating emerging technologies to provide insight into the appropriate scope and content of the new controls.

For example, BIS has indicated it will look to its Emerging Technologies and Research Advisory Committee, an advisory body of academics, industry personnel, and researchers that already assist BIS in identifying new technologies and gaps in existing controls. BIS may also rely on the surveys and network of company partnerships used by its Office of Technology Evaluation to conduct assessments of defense-related technologies. Other federal agencies engaged in the development of emerging technologies may also contribute to the identification of emerging technologies and appropriate controls, including for example the various advanced research projects agencies (e.g. DARPA, ARPA-E, and IARPA), the National Science Foundation's Foundations of Emerging Technologies, and the national laboratories. The work of these agencies and entities may suggest areas on which BIS could focus new controls.

BIS's current efforts to control emerging technologies and related products may also inform its development of new controls. In 2012, BIS established a dedicated system for controlling emerging technologies under Export Control Classification Number ("ECCN") 0Y521. These new controls were similarly intended to restrict the export of items presenting a significant military or intelligence advantage to the United States. Technology identified under this ECCN requires a license for export to all destinations, except Canada, with limited license exceptions available. Although only a few items have been identified for control under this existing mechanism (e.g. X-ray deflecting epoxies, biosensor systems, and tools for tritium production), BIS's use of the 0Y521 ECCN series may provide further evidence of the types of technologies BIS may target for control and the restrictions it will apply.

As it continues to await public comments and identify emerging technologies, BIS plans to publish a similar ANPRM requesting the public's assistance in identifying and defining "foundational technologies," which will also be subjected to new ECRA-mandated controls.<sup>[15]</sup> Once BIS has arrived at a definition for these terms and a set of potential controls, BIS will likely publish a proposed rule providing this information for another period of public comment. Those comments will undergo a similar process of interagency review, and BIS will announce its final rule providing the new controls on the export of emerging and foundational technologies.

Importantly, any technologies that BIS identifies as emerging or foundational through this rulemaking process will be considered "critical technologies" for the purposes of determining CFIUS

jurisdiction.<sup>[16]</sup> FIRRTA now requires that certain foreign investment in U.S. companies that deal in these critical technologies receive CFIUS review and approval. Under CFIUS's new program to pilot the implementation of these authorities, CFIUS must receive advance notice of certain types of non-controlling foreign investment in U.S. companies that design, test, manufacture, fabricate, or develop critical technologies—including emerging and foundational technologies identified by BIS—for use in one of several listed industries.<sup>[17]</sup> In this regard, BIS's final determination regarding what constitutes "emerging technologies" will also impact the scope of CFIUS's expanded jurisdiction.

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[1] Review of Controls for Certain Emerging Technologies, 83 Fed. Reg. 58,201 (advance notice of proposed rulemaking Nov. 19, 2018), <https://www.gpo.gov/fdsys/pkg/FR-2018-11-19/pdf/2018-25221.pdf> [hereinafter, "ANPRM"].

[2] Export Control Reform Act of 2018, Pub. L. No. 115-232, §§ 1751-1781 (2018).

[3] *Id.* § 1758.

[4] Foreign Investment Risk Review Modernization Act of 2018, Pub. L. No. 115-232, §§ 1701-1728 (2018).

[5] Export Control Reform Act of 2018, Pub. L. No. 115-232, § 1758 (2018).

[6] 15 C.F.R. § 772.1.

[7] *Id.*

[8] ANPRM, *supra* note 1 at 58,201.

[9] *Id.*

[10] *Id.* at 58,202.

[11] *Id.*

[12] Export Control Reform Act of 2018, Pub. L. No. 115-232, § 1758(b)(4)(c)(i) (2018).

[13] *Id.* § 1758(b)(4)(c)(iv).

[14] *Id.* § 1758(b)(4)(c)(v).

[15] ANPRM, *supra* note 1 at 58,202.

[16] Foreign Investment Risk Review Modernization Act of 2018, Pub. L. No. 115-232, § 1703 (2018).

[17] 31 C.F.R. § 801.101.

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