



January 9, 2019

Regulatory Policy Division
Bureau of Industry and Security
U.S. Department of Commerce
Room 2099B, 14th Street and Pennsylvania Avenue NW
Washington, DC 20230

Re: RIN 0694-AH61 – *Review of Controls for Certain Emerging Technologies*

Dear Deputy Assistant Secretary Borman,

I am writing on behalf of the Association of University Export Control Officers (AUECO), an association of over 250 export control professionals with compliance responsibilities at over 160 institutions of higher education within the United States. AUECO is committed to monitoring changes in the administration of export control laws and regulations that affect academia. AUECO appreciates the opportunity to provide comments on the U.S. Department of Commerce, Bureau of Industry and Security (BIS), Advanced Notice of Proposed Rulemaking (ANPRM), *Review of Controls for Certain Emerging Technologies*, 83 Fed. Reg. 58,201 (Nov. 19, 2018).

Preservation of scientific liberty in the conduct of fundamental research

As the Administration proceeds to identify and control emerging technologies essential to U.S. national security in accordance with Section 1758 of the National Defense Authorization Act for Fiscal Year 2019¹, AUECO strongly believes that any approach must remain consistent with existing, long-debated jurisdictional standards that prevent the over-regulation of technology generated by business and university “fundamental research.” Accordingly, we applaud the Bureau’s stated decision not to expand jurisdiction over technologies that are currently not subject to the EAR, in particular the results of “fundamental research.” Unduly restricting—or even chilling—the free exchange of ideas that characterizes the prevailing open research culture at U.S. universities could damage U.S. technological leadership, our economic competitiveness, and the intellectual development of the country’s future scientists and engineers.

¹ AUECO notes that the ANPRM inadvertently refers to emerging technologies as “important to” U.S. national security, rather than “essential to” the national security, per Subsection 1758(a)(1)(A). To minimize potential confusion about the scope of these technologies, we recommend that the implementing regulatory and policy text reflect the underlying statutory language precisely.

How to define emerging technology to assist identification of such technology in the future

The regulatory definition of “emerging technology” will be a critical foundational effort in this process. AUECO concurs with the following definition that we understand is being proposed by several commenters:

“Emerging technologies” are specific, non-mature (*i.e.*, developmental) core technologies essential to the national security interests of the United States that:

- (i) are required for the development, production, use, operation, installation, maintenance, repair, overhaul, or refurbishing of specific and identifiable potential conventional weapons, intelligence collection applications, weapons of mass destruction, or terrorist applications;
- (ii) would provide the United States with a specific and identifiable qualitative military or intelligence advantage;
- (iii) are not available in or otherwise being developed in foreign countries; and
- (iv) are not within the scope of any existing multilateral controls.

Note: A technology must not be identified or controlled as “emerging” unless it is within the scope of policy statements in ECRA for which technologies should be controlled for export. In particular, a technology must not be identified as “emerging” if a unilateral export control over it would:

- (i) harm domestic research into the identified technology;
- (ii) not be effective at preventing countries of concern from developing it indigenously or otherwise acquiring comparable technology from third countries;
- (iii) be imposed without a full consideration of the impact on the economy of the United States of such a control; or
- (iv) is of a type that is not likely to be considered acceptable by the multilateral regime allies or that is inconsistent with the standards for the types of controls that are subject to the multilateral regimes.

Criteria to apply to determine whether there are specific technologies within these general categories that are essential to U.S. national security

AUECO recommends that:

- The technology should be advanced enough to allow for segregation of controlled efforts from fundamental investigations or predominately civil or public service applications;
- The essential U.S. national security concerns should be clear, unambiguous, and readily identifiable;
- The technology must be discrete and separable from identical or similar technology with known or reasonably identifiable civil applications; and
- To the extent possible, the technology must be sufficiently describable with precise and narrow technical parameters/specifications such that technology is encompassed only when it is (a) essential to U.S.

national security because it offers cutting-edge military or intelligence advantages, and (b) not already available outside the U.S.

Sources to identify such technologies

AUECO recommends that BIS involve technical voices from the U.S. academic community to help identify technologies. University faculty stand squarely at the intersection of existing and emergent technological innovation. They are well-positioned to illuminate the future directionality and scope of novel technological innovation and may be able to help identify, at the earliest appropriate stage, those technologies that are essential to U.S. national security.

In addition, there are several well-respected, long-standing scientific associations already in existence with the technical expertise to advise on emerging technologies, including:

- National Academies of Sciences, Engineering, and Medicine
- American Association for the Advancement of Science
- Professional associations in specific technical content areas (e.g. Institute of Electrical and Electronics Engineers; American Society of Mechanical Engineers; American Institute of Aeronautics and Astronautics; and American Institute of Physics)

The impact specific emerging technology controls would have on U.S. technological leadership

While academic institutions have a strong desire to protect U.S. national security, as demonstrated by this organization's mission to share best practices and promote optimal export compliance, there is a concern about placing controls on emerging technologies prematurely. The lifecycle of research often starts with a research question and a hypothesis. If the hypothesis is confirmed, the research develops further. If the hypothesis is disproved, a new hypothesis is proposed. In the emerging technology space, this process may go through several iterations before practically useful technology emerges. The process is strengthened through collaboration with the best minds in the world and the sharing of results broadly with the international research community. The unfettered exchange of innovative knowledge allows science to advance faster and more efficiently than would be possible if controls were applied to emerging technologies too soon. One potential unintended consequence of adding emerging technologies to the CCL before they reach a stage requiring control is that it could make the technologies more difficult to handle, secure, and commercialize than foreign equivalents not bound by the same restrictions. This may actually hurt U.S. technological leadership by slowing or truncating technological advances and reducing universities' ability to partner with industry, including through Small Business Innovation Research and Small Business Technology Transfer Programs, to develop early stage technologies.

It may also reduce universities' ability to recruit and engage the most promising non-U.S. researchers who have the ability to advance our emerging technology research in the future. If controls are not carefully tailored, especially in the deemed export context, the reduced ability of the United States to participate in groundbreaking efforts in international collaborative research could unduly hamper university faculty and researchers from advancing technologies at a rate consistent with the rest of the world. Hence, the identification and control system will need to (a) involve careful consideration of foreign availability questions, and (b) be nimble enough to adjust reasonably quickly so that U.S. emerging technologies are not controlled for longer than is essential to protect the national security.

Of course, it is not easy to offer specific predictions on the potential impact of emerging technology controls in the abstract. As BIS implements Section 1758 of the National Defense Authorization Act for Fiscal Year 2019 (hereinafter "NDAA 2019"), we anticipate that there will be a need for iterative exchanges with the regulated community, via both advisory groups and public notice and comment requests in the *Federal Register*. Useful input would come from not only scientific experts, as noted above, but also university professionals in the research administration and export compliance fields, who bring unique perspectives on the potential impacts of government regulatory efforts on the ability to fuel innovation domestically.

Any other approaches to the issue of identifying emerging technologies important to U.S. national security, including the state of development or maturity level of an emerging technology that would warrant consideration for export control

Section 1752(10) of NDAA 2019 requires a robust interagency process to identify emerging technologies of concern, and further states that identification efforts should draw upon the resources and expertise of all relevant parts of the U.S. Government, industry and academia. Section 1758(a)(2)(A)(iv) of NDAA 2019 specifically references the BIS Emerging Technology and Research Advisory Committee (ETRAC) as an informational source to be included in the identification of emerging technologies warranting controls. AUECO concurs with the Council on Governmental Relations and strongly endorses the use of the ETRAC for this purpose and encourages BIS to ensure that adequate representation from the academic community, and particularly of leading academics with research expertise in the emerging technologies under consideration, be included. AUECO also supports the ad hoc participation of academic experts in fields under consideration at ETRAC meetings where sufficient expertise may not exist amongst the standing academic members of the committee.

Conclusion

AUECO appreciates the opportunity to submit this comment letter and is encouraged by the stated desire in Section 1758 of the NDAA 2019 to directly involve industry and academic experts in the process of identifying and controlling emerging technologies. AUECO remains hopeful that such involvement will facilitate a workable, efficient, and effective control mechanism to help sustain and protect the country's national security interests while remaining consistent with academic community's educational, public service, and research missions. As such, AUECO and its membership encourage the continued use and involvement of the resources available within AUECO and other similar professional and academic organizations throughout this regulatory development, comment, and implementation process.

Respectfully,



Wayne L. Mowery, Jr.

Chair
Association of University Export Control Officers
Website: <http://aueco.org>