



DEPARTMENT OF COMMERCE

Bureau of Industry and Security

[Docket No. 210310-0052]

RIN 0694-XC073

Risks in the Semiconductor Manufacturing and Advanced Packaging Supply Chain

AGENCY: Bureau of Industry and Security, Office of Technology Evaluation, U.S. Department of Commerce.

ACTION: Notice of request for public comments.

SUMMARY: On February 24, 2021, President Biden issued an Executive order on “America’s Supply Chains,” which directs several Federal agency actions to secure and strengthen America’s supply chains. One of these directions is for the Secretary of Commerce (the Secretary) to submit, within 100 days, a report to the President identifying risks in the semiconductor manufacturing and advanced packaging supply chains, and proposing policy recommendations to address these risks. Additionally, the National Defense Authorization Act of 2021 (FY21 NDAA) includes a title for, “Creating Helpful Incentives to Produce Semiconductors for America” that mandates several Federal actions in securing the semiconductor-related supply chain. One of these requirements is for the Secretary to assess the capabilities of the U.S. microelectronics industrial base to support the national defense, in light of the global nature and interdependence of the supply chain with respect to manufacture, design, and end use. This notice requests comments and information from the public to assist the Department of Commerce (Commerce) in preparing the report required by the Executive order.

After that report is completed, Commerce will assess whether additional information will be needed to conduct the assessment required by the FY21 NDAA.

DATES: The due date for filing comments is [INSERT DATE OF TWENTY-ONE DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: *Submissions:* All written comments in response to this notice must be addressed to Semiconductor Manufacturing Supply Chain filed through the Federal eRulemaking Portal: <http://www.regulations.gov>. To submit comments via <http://www.regulations.gov>, enter docket number BIS–2021–0011 on the home page and click “search.” The site will provide a search results page listing all documents associated with this docket. Find a reference to this notice and click on the link entitled “Comment Now!” (For further information on using <http://www.regulations.gov>, please consult the resources provided on the website by clicking on “How to Use This Site.”)

FOR FURTHER INFORMATION CONTACT: David Boylan, Defense Industrial Base Division, Office of Technology Evaluation, Bureau of Industry and Security, at 202-734-9652, David.Boylan@bis.doc.gov, or Semiconductorstudy@bis.doc.gov

SUPPLEMENTARY INFORMATION:

Background

On February 24, 2021, President Biden issued Executive Order 14017, “America’s Supply Chains” (86 FR 11849) (E.O. 14017). E.O. 14017 focuses on the need for resilient, diverse, and secure supply chains to ensure U.S. economic prosperity and national security. Such supply chains are needed to address conditions that can reduce critical manufacturing capacity and the availability and integrity of critical goods, products, and services. In relevant part, E.O. 14017 directs that within 100 days, the Secretary shall submit a report to the President, through the Assistant to the President for National Security Affairs (APNSA) and the Assistant to the President for Economic Policy (APEP), identifying the risks in the semiconductor

manufacturing and advanced packaging supply chains and policy recommendations to address these risks.

Additionally, Title XCIX of the National Defense Authorization Act of 2021 (FY21 NDAA), “Creating Helpful Incentives to Produce Semiconductors for America,” mandates several Federal actions to secure the security of the semiconductor-related supply chain. Section 9904 of the FY21 NDAA (“Department of Commerce Study on Status of Microelectronics Technologies in the United States”) requires the Secretary to assess the capabilities of the U.S. microelectronics industrial base to support the national defense, in light of the global nature and interdependence of the supply chain with respect to manufacture, design, and end use. The Secretary must submit a report to Congress that includes a list of critical technology areas impacted by potential disruptions in the production of microelectronics and an assessment of gaps and vulnerabilities in the microelectronics supply chain.

This notice requests comments and information from the public to assist Commerce in preparing the report required by Executive Order 14017. In developing this report, the Secretary will consult with the heads of appropriate agencies, and will be advised by all relevant bureaus and components of the Department of Commerce, including, but not limited to the Bureau of Industry and Security and the International Trade Administration. After that report is completed, Commerce will assess whether additional information will be needed to conduct the assessment required by Section 9904 of the FY21 NDAA.

Written Comments

The Department is particularly interested in comments and information directed to the policy objectives listed in E.O. 14017 as they affect the U.S. semiconductor manufacturing and advanced packaging supply chains, including but not limited to the following elements:

- (i) critical and essential goods and materials underlying the semiconductor manufacturing and advanced packaging supply chain;

(ii) manufacturing and other capabilities necessary to produce semiconductors, including electronic design automation software and advanced integrated circuit packaging techniques and capabilities;

(iii) the availability of the key skill sets and personnel necessary to sustain a competitive U.S. semiconductor ecosystem, including the domestic education and manufacturing workforce skills needed for semiconductor manufacturing; the skills gaps therein, and any opportunities to meet future workforce needs;

(iv) risks or contingencies that may disrupt the semiconductor supply chain (including defense, intelligence, cyber, homeland security, health, climate, environmental, natural, market, economic, geopolitical, human-rights or forced labor risks):

a. risks posed by reliance on digital products that may be vulnerable to failures or exploitation;

b. risks resulting from lack of or failure to develop domestic manufacturing capabilities, including emerging capabilities;

(v) the resilience and capacity of the semiconductor supply chain to support national and economic security and emergency preparedness, including:

a. manufacturing or other needed capacities (including ability to modernize to meet future needs);

b. gaps in manufacturing capabilities, including nonexistent, threatened, or single-point-of-failure capabilities, or single or dual suppliers;

c. location of key manufacturing and production assets, and risks posed by these assets' physical location;

d. exclusive or dominant supply of critical or essential goods and materials by or through nations that are, or may become, unfriendly or unstable;

e. availability of substitutes or alternative sources for critical or essential goods and materials;

- f. need for research and development capacity to sustain leadership in the development of goods and materials critical or essential to semiconductor manufacturing;
- g. current domestic education and manufacturing workforce skills and any identified gaps, opportunities and potential best practices;
- h. role of transportation systems in supporting the semiconductor supply chain and risks associated with these transportation systems;
- i. risks posed by climate change to the availability, production, or transportation of goods and materials critical to semiconductor manufacturing.

(vi) Potential impact of the failure to sustain or develop elements of the semiconductor supply chain in the United States on other key downstream capabilities, including but not limited to food resources, energy grids, public utilities, information communications technology (ICT), aerospace applications, artificial intelligence applications, 5G infrastructure, quantum computing, supercomputer development, and election security. Also, the potential impact of purchases of semi-conductor finished products by downstream customers, including volume and price, product generation and alternate inputs.

(vii) Policy recommendations or suggested executive, legislative, regulatory changes, or actions to ensure a resilient supply chain for semiconductors (*e.g.*, reshoring, nearshoring, or developing domestic suppliers, cooperation with allies to identify or develop alternative supply chains, building redundancy into supply chains, ways to address risks due to vulnerabilities in digital products or climate change).

(viii) Any additional comments relevant to the assessment of the semiconductor manufacturing and advanced packaging supply chains required by E.O. 14017.

Commerce encourages commenters, when addressing the elements above, to structure their comments using the same text as identifiers for the areas of inquiry to which their comments respond to assist Commerce in more easily reviewing and summarizing the comments received in response to these specific comment areas. For example, a commenter submitting comments responsive to *(i) critical and essential goods and materials underlying the semiconductor supply chain*, would use that same text as a heading in the public comment followed by the commenter's specific comments in this area.

Requirements for Written Comments

The <http://www.regulations.gov> website allows users to provide comments by filling in a "Type Comment" field, or by attaching a document using an "Upload File" field. The Department prefers that comments be provided in an attached document. The Department prefers submissions in Microsoft Word (.doc files) or Adobe Acrobat (.pdf files). If the submission is in an application format other than Microsoft Word or Adobe Acrobat, please indicate the name of the application in the "Type Comment" field. Please do not attach separate cover letters to electronic submissions; rather, include any information that might appear in a cover letter within the comments. Similarly, to the extent possible, please include any exhibits, annexes, or other attachments in the same file, so that the submission consists of one file instead of multiple files. Comments (both public comments and non-confidential versions of comments containing business confidential information) will be placed in the docket and open to public inspection. Comments may be viewed on <http://www.regulations.gov> by entering docket number BIS-2021-0011 in the search field on the home page.

All filers should name their files using the name of the person or entity submitting the comments. Anonymous comments are also accepted. Communications from agencies of the United States Government will not be made available for public inspection.

Anyone submitting business confidential information should clearly identify the business confidential portion at the time of submission, file a statement justifying nondisclosure and referring to the specific legal authority claimed, and provide a non-confidential version of the submission. The non-confidential version of the submission will be placed in the public file on <http://www.regulations.gov>. For comments submitted electronically containing business confidential information, the file name of the business confidential version should begin with the characters "BC". Any page containing business confidential information must be clearly marked "BUSINESS CONFIDENTIAL" on the top of that page. The non-confidential version must be clearly marked "PUBLIC". The file name of the non-confidential version should begin with the character "P". The "BC" and "P" should be followed by the name of the person or entity submitting the comments or rebuttal comments. If a public hearing is held in support of this assessment, a separate *Federal Register* notice will be published providing the date and information about the hearing.

The Bureau of Industry and Security does not maintain a separate public inspection facility. Requesters should first view the Bureau's web page, which can be found at <https://efoia.bis.doc.gov/> (see "Electronic FOIA" heading). If requesters cannot access the website, they may call 202-482-0795 for assistance. The records related to this assessment are made accessible in accordance with the regulations published in part 4 of title 15 of the Code of Federal Regulations (15 CFR 4.1 through 4.11).

Matthew S. Borman,

Deputy Assistant Secretary for Export Administration

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