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US targets Russia's quantum computing capabilities

On 15 September, in a coordinated effort across multiple agencies, the US government announced new export controls and economic sanctions designed to debilitate Russia's quantum computing capabilities. According to the US government, quantum computing is critical to supporting Russia's military aggression in Ukraine. The new measures adopted by the US Departments of Commerce, Treasury, and State will immediately impact US and foreign manufacturers, exporters, and service providers. The new rules and prohibitions are summarized below.

BIS

As relevant here, the US Department of Commerce, Bureau of Industry and Security ("BIS") created a new Supplement No. 6 to Part 746 of the Export Administration Regulations ("EAR"), which contains a list of quantum computing-related hardware, software, and technology, as well as advanced manufacturing items relevant to numerous industries, along with chemicals, biologics, fentanyl and its precursors, and related chemical production equipment. These items, which are otherwise designated as

EAR99, are now subject to a licensing requirement for Russia and Belarus.

The quantum computing-related provisions, which were added via paragraph (g) to Supplement No. 6, identify equipment and other items that

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BIS has determined are likely not manufactured in Russia or are otherwise important to Russia's development of advanced production and development capabilities to enable advanced manufacturing capabilities across a number of industries, including Russia's defense-industrial base. The range of items includes: quantum computers and certain specially designed electronic assemblies and components (g)(1); cryogenic refrigeration systems meeting certain specifications and certain specially designed cryogenic refrigeration equipment and components

(g)(2); certain Ultra-High Vacuum (UHV) equipment (g)(3); High Quantum Efficiency (QE) photodetectors and sources meeting certain specifications (g)(4); specified types of additive manufacturing equipment (g)(5); metal powders and metal alloy powders specially designed for specified additive manufacturing equipment (g)(6); specified microscopes, related equipment and detectors (g)(7); decapsulation equipment for semiconductor devices (g)(8); software specially designed or modified for the development, production, or use of the aforementioned items (g)(9); software for Digital Twins (DT) of additive manufacture products or for the determination of the reliability of such products (g)(10); technology for the development, production, or use of the aforementioned items (g)(11).

Supplement No. 6 also includes several technical notes to assist exporters, reexporters, and transferors in understanding the controls. Notes 6 through 12, which correspond to controls set forth in various sub-parts of paragraph (g), provide clarity on the scope and definition of many of the covered items now subject to licensing requirements.

Notably, the new rule expanded and clarified the scope of the EAR in a number of ways that go far beyond quantum computing, some of which impose significant new compliance challenges related to Russia and Belarus.

OFAC

To buttress the new quantum computing-related export controls introduced by BIS, the US Department of the Treasury, Office of Foreign Assets Control ("OFAC") acted to cut off Russia from services supporting the sector. Specifically, OFAC issued a determination pursuant to Executive Order (EO) 14071 prohibiting the exportation, reexportation, sale, or supply, directly or indirectly, from the United States, or by a US person, wherever located, of quantum computing services to any person located in Russia. The prohibition is effective 15 October 2022.

OFAC also took a parallel action by identifying the quantum computing sector of the Russian economy pursuant to EO 14024. That determination allows sanctions to be imposed on any individual or entity determined to operate or have operated in that sector of the Russian economy, which immediately elevates the sanctions risk for any and all persons and entities involved in the sector.

In conjunction with these determinations, OFAC issued new FAQs, including ones that clarify the scope and

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impact of its actions targeting the quantum computing sector of Russia's economy (FAQ 1083), and define the term "quantum computing services" for purposes of the determination made pursuant to EO 14071 (FAQ 1084).

US Department of State

The State Department separately

sanctioned over 50 individuals and entities pursuant to EO 14024 for being involved in various aspects of Russia's war in Ukraine and/or certain sectors of Russia's economy previously authorized for sanctions per a determination by Treasury. Among those sanctioned were numerous entities that are operating or have operated in the technology sector of

Russia's economy, including several focused on the development of quantum technologies and quantum computing. ■

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