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New U.S. Policy Regarding Nuclear Exports to China

Introduction

On October 11, 2018, the U.S. Department of Energy (DOE) announced “measures to prevent China’s illegal diversion of U.S. civil nuclear technology for military or other unauthorized purposes.” These measures, which took effect immediately, include additional restrictions on U.S.-origin nuclear-related exports to China; such exports require a specific export license or other authorization. Nuclear industry groups have raised concerns about the new policy’s limits on future access to the Chinese market, though the effect of the new policy on nuclear cooperation is unclear.

The United States has extensive nuclear cooperation with China, which is governed by a civil nuclear cooperation agreement renewed in 2015. These agreements are commonly known as “123 agreements” after the relevant section of the Atomic Energy Act of 1954. (For more information, see CRS Report RL33192, *U.S.-China Nuclear Cooperation Agreement*.) The Trump Administration devised the new policy after a National Security Council-ordered review of the previous U.S. policy regarding civil nuclear cooperation with China, according to a U.S. government official speaking during an October 11 background briefing. The review, which began in 2017, “was prompted by China’s accelerated efforts to acquire U.S. intellectual property and advanced technology, including through illicit means to benefit its military programs as well as to gain a competitive advantage to the detriment of U.S. businesses and U.S. national security,” the official said.

In explaining the new policy, U.S. officials have argued that Beijing may use U.S. nuclear technology to improve China’s military capabilities and, therefore, a higher level of scrutiny for certain transfers is justified. Specifically, these officials have claimed that Beijing may use small modular reactors (SMRs) or other unspecified reactor designs to improve nuclear reactors for placement on disputed islands in the South China Sea, floating nuclear power reactors for possible deployment to that region, and propulsion for Chinese nuclear-powered submarine and other naval vessels. A U.S. government Nuclear Proliferation Assessment Statement submitted to Congress in 2015 expressed concern about potential Chinese misuse of U.S. nuclear power technology. “China’s strategy for strengthening its military involves the acquisition of foreign technology as well as greater civil-military integration, and both elements have the potential to decrease development costs and to accelerate military modernization,” according to the assessment, which specifically raised concerns that China could use the unique sealed pumps used by the Westinghouse AP1000 reactor for the Chinese naval reactor

program. China is building AP1000 reactors under a 2007 technology transfer agreement.

Nuclear Export Approvals

The Nuclear Regulatory Commission (NRC) authorizes export licenses for nuclear equipment and materials. In addition, the Secretary of Energy may, pursuant to Section 57.b. (2) of the Atomic Energy Act, authorize some forms of nuclear cooperation related to the “development or production of any special nuclear material outside of the United States.” Known as “Part 810 authorizations,” after 10 Code of Federal Regulations (C.F.R.) Part 810, these activities generally involve transfers of unclassified nuclear technology and services, such as nuclear reactor designs, nuclear facility operational information and training, and nuclear fuel fabrication. Such authorizations are not required for NRC-licensed exports.

A number of regulations on U.S. nuclear exports to China, as well as other countries, are designed to prevent the diversion or misuse of U.S. nuclear technology. In the case of specific technology transfers to China, Beijing confirms to the U.S. government that it will apply the 123 agreement’s “legally-binding nonproliferation obligations” to particular technology transfers, according to a November 30 DOE email to CRS. Moreover, Part 810 authorizations require the Energy Secretary’s determination that the activity “will not be inimical to the interest of the United States”; such a determination requires the State Department’s concurrence and the Energy Department’s consultation with the NRC, the Department of Commerce, the Department of Defense, and the Office of the Director of National Intelligence (ODNI).

New Policy Details

The new policy “establishes a clear framework for the disposition” of current requests for Part 810 authorizations concerning transfers to China that are “on hold because of military diversion and proliferation concerns,” according to an October 11 DOE statement. The new policy will affect “[n]early 30” such requests, according to the November 30 DOE email. The policy also implicates export licenses, according to an undated DOE document that also describes the transfers that are subject to presumptions of approval or denial. According to the NRC, such presumptions are recommendations “from the Executive Branch process ... to provide judgment as to whether a proposed export would be inimical to the common defense and security” of the United States. An independent agency, the NRC “evaluates the Executive Branch’s inimicality decision as part of the licensing process.” According to the DOE email:

in order to override a presumption of denial, the United States must be able to develop and enforce

measures sufficient to mitigate the inherent proliferation risk(s). Conversely, for those cases in which there is a presumption of approval, the United States will analyze the proposed transfer to determine whether the risk of proliferation pertaining to a specific export request is too great to allow for the transfer to take place.

During the October 11 briefing, U.S. officials said that NRC-issued licenses will remain in effect under the new policy. Although the policy applies to existing Part 810 authorizations, the “vast majority” will likely remain unaffected.

Part 810 Authorizations

With respect to Part 810 authorizations, the new policy mandates a presumption of approval for

- “amendments or extensions for existing authorizations for technology transferred prior to January 1, 2018”;
- “new technology transfers for operational safety contingent on satisfactory technical analysis on applicability to and benefit of operational safety and assessment of the end user”; and
- “new technology transfers required to support sale of an item that is commercially available.”

There is a presumption of denial for

- “exports related to light water SMRs [light water reactors use ordinary water for cooling and to sustain the nuclear chain reaction]”;
- “non-light water advanced reactors”; and
- “new technology transfers after January 1, 2018.”

Export Licenses

With respect to NRC export licenses for equipment and components, the new policy mandates a presumption of approval for

- support to “continued projects such as construction of AP-1000, CAP-1000,” reactors and “major identical components supporting CAP-1400 reactors”; and
- “pressurized light water SMR or non-light water advanced reactors with no technology transfer above and beyond installation and operation.”

There is a presumption of denial for exports related to “direct economic competition with the United States,” such as the Hualong One nuclear reactor and “unique U.S. components supporting CAP-1400 reactors.”

Nuclear Material

With respect to NRC export licenses for nuclear material, the new policy mandates a presumption of approval “for new license applications and amendments or extensions to existing authorizations.”

China General Nuclear Power Corporation

The new policy targets transfers involving the state-owned China General Nuclear Power Corporation (CGN). Specifically, with respect to CGN and its “subsidiaries or related entities,” the policy mandates a presumption of denial for Part 810 authorizations and export licenses for nuclear material and nuclear-related equipment and components. In 2016, the U.S. government indicted CGN and a Taiwan-born naturalized U.S. citizen, as well as his corporation, for “conspiring to unlawfully engage and participate ... in the development and production of special nuclear material” in China without proper legal authorization. (“Special nuclear material,” defined in 42 U.S.C. §2014, refers primarily to plutonium and enriched uranium.) The citizen pleaded guilty to this charge in January 2017. The purpose of this conspiracy, according to the indictment, was to improve CGN’s ability to “design and manufacture certain components for nuclear reactors more quickly by reducing the time and financial costs of research and development.”

During the October 11 briefing, a U.S. official credited the ODNI’s consultative role, mandated by Section 3136 of the National Defense Authorization Act for Fiscal Year 2016 (P.L. 114-92, hereafter “FY 2016 NDAA”), with providing additional relevant information to DOE. The Energy Department typically includes intelligence reviews when reviewing such authorizations, but “as a result of” the FY2016 NDAA, “there were more resources devoted toward that end,” resulting in “additional information” that increased DOE’s concerns about nuclear-related transfers to China, the official explained. This new information, “in concert with” the CGN-related activities described above, “raised the risk level for these transactions beyond what was evident in 2015,” the November 30 DOE email said.

China-Specific Reporting Requirements

Section 3136 of the FY2016 NDAA contains several reporting requirements concerning Part 810 authorizations with respect to China. For example, this law requires the Energy Secretary to notify a number of congressional committees at least 14 days before issuing such an authorization. The Secretary must also provide a “statement of whether any agency required to be consulted ... objected to or sought conditions on the transfer.” The committees are the Senate and House Armed Service Committees, the Senate Select Committee on Intelligence, the Senate Committees on Foreign Relations and Energy and Natural Resources, the House Permanent Select Committee on Intelligence, and the House Committees on Foreign Affairs and Energy and Commerce. The Secretary must also submit a description of such authorizations at least every 90 days to the same committees, as well as a report at least annually that includes “an assessment of whether” China is “in compliance with its obligations” under any Part 810 authorization and a description of U.S. efforts to remedy any noncompliance. These requirements also apply to Part 810 authorizations with respect to Russia.

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