115TH CONGRESS
2D Session

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To require the Secretary of Energy to carry out quantum information science research, and for other purposes.

IN THE SENATE OF THE UNITED STATES

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introduced the following bill; which was read twice  
and referred to the Committee on  

A BILL

To require the Secretary of Energy to carry out quantum information science research, and for other purposes.

Be it enacted by the Senate and House of Representa-
tives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “Department of Energy Quantum Information Science Research Act”.

SEC. 2. QUANTUM INFORMATION SCIENCE RESEARCH PRO-
GRAM.

(a) IN GENERAL.—The Secretary of Energy shall carry out a basic research program on quantum informa-
tion science.
(b) PROGRAM COMPONENTS.—In carrying out the program required under subsection (a), the Secretary shall—

(1) formulate goals for quantum information science research to be supported by the Department of Energy;

(2) leverage the collective body of knowledge from existing quantum information science research;

(3) provide research experiences and training for additional undergraduate and graduate students in quantum information science, including in the fields of—

(A) quantum information theory;

(B) quantum physics;

(C) quantum computational science;

(D) applied mathematics and algorithm development;

(E) quantum networking;

(F) quantum sensing and detection; and

(G) materials science and engineering;

(4) coordinate research efforts funded through existing programs across the Department, including the National Laboratories, the Advanced Research Projects Agency—Energy, the Energy Frontier Research Centers, the Nanoscale Science Research
Centers, the Energy Innovation Hubs, and the National Quantum Information Science Research Centers established under section 3; and

(5) coordinate with other Federal agencies, research communities, and potential users of information produced under this section.

SEC. 3. NATIONAL QUANTUM INFORMATION SCIENCE RESEARCH CENTERS.

(a) Establishment.—

(1) In general.—The Secretary of Energy, acting through the Director of the Office of Science (referred to in this section as the “Director”) shall ensure that the Office of Science carries out a program, in consultation with other Federal agencies, as appropriate, to establish and operate at least 2, but not more than 5, research centers to be known as “National Quantum Information Science Research Centers” to conduct basic research to accelerate scientific breakthroughs in quantum information science and technology and to support research conducted under the program established in section 2.

(2) Requirements.—Such centers shall be established through a competitive, merit-reviewed process, and applicants shall submit to the Director an
application at such time, in such manner, and containing such information as the Director determines to be appropriate. The Director shall consider applications from National Laboratories, institutions of higher education, research centers, multi-institutional collaborations, and any other entity that the Secretary determines to be appropriate.

(b) COLLABORATIONS.—A collaboration that receives assistance under this section may include multiple types of research institutions and private sector entities.

(c) REQUIREMENTS.—To the maximum extent practicable, the Centers developed, constructed, operated, or maintained under this section shall serve the needs of the Department of Energy, industry, the academic community, and other relevant entities to create and develop processes for the purpose of advancing basic research in quantum information science and improving the competitiveness of the United States.

(d) COORDINATION.—The Secretary shall ensure the coordination, and avoid unnecessary duplication, of the activities of each National Quantum Information Science Research Center with the activities of—

(1) other research entities of the Department, including—
(A) the Nanoscale Science Research Centers;

(B) the Energy Frontier Research Centers;

(C) the Energy Innovation Hubs;

(D) the National Laboratories; and

(E) institutions of higher education; and

(2) industry.

(e) SELECTION AND DURATION.—

(1) IN GENERAL.—The centers selected and established under this section are authorized to carry out activities for a period of 5 years.

(2) REAPPLICATION AND APPROVAL.—An awardee may reapply for additional, subsequent periods of 5 years. The Director shall approve or disapprove of an application on a competitive, merit-reviewed basis.

(3) TERMINATION.—Consistent with the existing authorities of the Department, the Secretary may terminate an underperforming Center for cause during the performance period.

(f) FUNDING.—There is authorized to be appropriated to the Department of Energy for each of fiscal years 2019 through 2023, up to $25,000,000 for each Center established under this section, subject to the availability of appropriations. This section shall be carried out
1 using funds otherwise appropriated by law after the date of enactment of this Act.