

119TH CONGRESS
2D SESSION

S. _____

To require the Federal Energy Regulatory Commission to consider cybersecurity risks from quantum computers, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mr. COONS (for himself and Mr. ROUNDS) introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To require the Federal Energy Regulatory Commission to consider cybersecurity risks from quantum computers, and for other purposes.

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

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Quantum Grid Utility
5 Assurance and Resilient Defense Act of 2026” or the
6 “Quantum-GUARD Act of 2026”.

7 **SEC. 2. DEFINITIONS.**

8 In this Act:

9 (1) BULK-POWER SYSTEM.—The term “bulk-
10 power system” has the meaning given the term in

1 section 215(a) of the Federal Power Act (16 U.S.C.
2 824o(a)).

3 (2) COMMISSION.—The term “Commission”
4 means the Federal Energy Regulatory Commission.

5 (3) ELECTRIC RELIABILITY ORGANIZATION.—
6 The term “Electric Reliability Organization” has the
7 meaning given the term in section 215(a) of the
8 Federal Power Act (16 U.S.C. 824o(a)).

9 (4) HIGH-VALUE.—The term “high-value”, with
10 respect to an IT or OT system, means that the sys-
11 tem is so critical to an organization that the loss or
12 corruption of information within the system or loss
13 of access to the system would have serious impacts
14 on the ability of the organization to perform its mis-
15 sion or conduct business.

16 (5) INFORMATION TECHNOLOGY; IT.—

17 (A) IN GENERAL.—The term “information
18 technology” or “IT” means any equipment or
19 interconnected system or subsystem of equip-
20 ment used in the automatic acquisition, storage,
21 analysis, evaluation, manipulation, manage-
22 ment, movement, control, display, switching,
23 interchange, transmission, or reception of data
24 or information.

1 (B) INCLUSIONS.—The term “information
2 technology” or “IT” includes, at a minimum,
3 computers, ancillary equipment (including imag-
4 ing peripherals, input, output, and storage de-
5 vices necessary for security and surveillance),
6 peripheral equipment designed to be controlled
7 by the central processing unit of a computer,
8 software, firmware and similar procedures,
9 services (including support services), and re-
10 lated resources.

11 (6) OPERATIONAL TECHNOLOGY; OT.—

12 (A) IN GENERAL.—The term “operational
13 technology” or “OT” means any programmable
14 system or device that—

15 (i) interacts with the physical environ-
16 ment (or manages devices that interact
17 with the physical environment); and

18 (ii) detects or causes a direct change
19 through the monitoring or control of de-
20 vices, processes, or events.

21 (B) INCLUSIONS.—The term “operational
22 technology” or “OT” includes, at a minimum,
23 industrial control systems, building manage-
24 ment systems, fire control systems, and physical
25 access control mechanisms.

1 (7) POST-QUANTUM CRYPTOGRAPHY; PQC.—The
2 term “post-quantum cryptography” or “PQC”
3 means cryptographic algorithms or methods that are
4 assessed not to be specifically vulnerable to attack
5 by any of—

6 (A) a quantum computer (as defined in
7 section 3 of the Quantum Computing Cyberse-
8 curity Preparedness Act (6 U.S.C. 1526 note;
9 Public Law 117–260)); or

10 (B) a classical computer (as defined in
11 that section).

12 (8) PQC SANDBOX.—The term “PQC sandbox”
13 means a program for innovation and development
14 with respect to the use of post-quantum cryptog-
15 raphy in IT and OT applications for the electric grid
16 that—

17 (A) assembles relevant stakeholders, which
18 may include operators of the bulk-power sys-
19 tem, IT and OT vendors, relevant Federal
20 agencies, relevant State and local organizations,
21 and distribution utilities (as defined in section
22 217(a) of the Federal Power Act (16 U.S.C.
23 824q(a)));

24 (B) addresses challenges in PQC cyberse-
25 curity development and adoption;

1 (C) prioritizes activities that support, en-
2 courage, or enable PQC integration into—

3 (i) existing systems; and

4 (ii) during the 5-year period beginning
5 on the date of enactment of this Act, sys-
6 tems that are expected to be deployed
7 within that 5-year period;

8 (D) may include briefings, workshops, soft-
9 ware challenges, hardware modeling, grid sim-
10 ulations, or red-teaming exercises; and

11 (E) may be used to develop and test dem-
12 onstrations, proofs of concept, interoperability
13 between IT and OT systems, and pilot applica-
14 tions.

15 (9) RELIABILITY STANDARD.—The term “reli-
16 ability standard” has the meaning given the term in
17 section 215(a) of the Federal Power Act (16 U.S.C.
18 824o(a)).

19 (10) SECRETARY.—The term “Secretary”
20 means the Secretary of Energy, acting through the
21 Office of Cybersecurity, Energy Security, and Emer-
22 gency Response.

1 **SEC. 3. FERC CONSIDERATION OF CYBERSECURITY RISKS**
2 **FROM QUANTUM COMPUTERS.**

3 Beginning on the date of enactment of this Act, in
4 reviewing a proposed reliability standard, or a proposed
5 modification to a reliability standard, under section 215
6 of the Federal Power Act (16 U.S.C. 824o) or issuing an
7 order under subsection (d)(5) of that section, the Commis-
8 sion shall—

9 (1) consider—

10 (A) cybersecurity risks from quantum com-
11 puters; and

12 (B) potential uses of post-quantum cryp-
13 tography in IT and OT systems to protect
14 against those risks; and

15 (2) take such action the Commission determines
16 to be appropriate based on that consideration.

17 **SEC. 4. DOE PQC SANDBOX.**

18 (a) IN GENERAL.—Not later than 1 year after the
19 date of enactment of this Act, the Secretary shall establish
20 a PQC sandbox.

21 (b) COLLABORATION.—In establishing and maintain-
22 ing the PQC sandbox under subsection (a), the Secretary
23 may collaborate, as appropriate, with appropriate officials
24 at other Federal agencies.

25 (c) OUTREACH.—Not later than 3 years after the
26 date of enactment of this Act, the Secretary shall publish

1 a report describing the outcomes of, and recommendations
2 arising from, PQC sandbox activities, to encourage PQC
3 adoption by operators of the bulk-power system.

4 **SEC. 5. PQC REPORT.**

5 (a) STUDY.—The Secretary, in consultation with the
6 Electric Reliability Organization and other appropriate or-
7 ganizations, shall conduct a study of cybersecurity risks
8 to the bulk-power system from quantum computers, in-
9 cluding, at minimum—

10 (1) risks to IT and OT systems; and

11 (2) obstacles to transitioning high-value IT and
12 OT systems to PQC.

13 (b) REQUIREMENTS.—In conducting the study under
14 subsection (a), the Secretary shall—

15 (1) develop recommendations for actions that
16 the Commission could take to ensure reliable oper-
17 ations of the bulk-power system; and

18 (2) to the extent practicable, correlate the high-
19 value IT and OT systems considered in the study
20 with appropriate categories based on reliability
21 standards, such as impact categories relating to the
22 Bulk Electric System (as defined by the Electric Re-
23 liability Organization), so the results of the study
24 may be readily applied by the Electric Reliability Or-
25 ganization.

1 (c) REPORT.—

2 (1) IN GENERAL.—Not later than 1 year after
3 the date of enactment of this Act, the Secretary
4 shall submit to the Committee on Energy and Nat-
5 ural Resources of the Senate and the Committee on
6 Energy and Commerce of the House of Representa-
7 tives a report on the study required under subsection
8 (a).

9 (2) FORM.—The report required under para-
10 graph (1) shall be in unclassified form, but may in-
11 clude a classified annex.

12 (3) PUBLIC AVAILABILITY.—The Secretary
13 shall make available to the public the unclassified
14 portion of the report required under paragraph (1).