

116TH CONGRESS
1ST SESSION

S. 2702

To require the Secretary of Energy to establish an integrated energy systems research, development, and demonstration program, and for other purposes.

IN THE SENATE OF THE UNITED STATES

OCTOBER 24, 2019

Mr. RISCH (for himself and Mr. MANCHIN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To require the Secretary of Energy to establish an integrated energy systems research, development, and demonstration program, 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 “Integrated Energy Sys-
5 tems Act of 2019”.

6 **SEC. 2. INTEGRATED ENERGY SYSTEMS PROGRAM.**

7 (a) DEFINITIONS.—In this section:

1 (1) PROGRAM.—The term “program” means
2 the Integrated Energy Systems Program established
3 under subsection (b)(1).

4 (2) SECRETARY.—The term “Secretary” means
5 the Secretary of Energy.

6 (b) ESTABLISHMENT.—

7 (1) IN GENERAL.—The Secretary shall establish
8 a program within the Office of Nuclear Energy, to
9 be known as the “Integrated Energy Systems Pro-
10 gram”—

11 (A) to maximize energy production and ef-
12 ficiency;

13 (B) to provide reliable, competitive, and
14 environmentally sustainable electricity to the
15 grid;

16 (C) to expand the use of emissions-reduc-
17 ing energy technologies into nonelectric sectors
18 to achieve dramatic reductions in environmental
19 emissions; and

20 (D) to enable the energy infrastructure of
21 the United States to support the quantity, vari-
22 ability in type, and variability in size of genera-
23 tion devices and smart load devices.

1 (2) PROGRAM ADMINISTRATION; PARTNERS.—

2 The program shall be carried out by the Office of
3 Nuclear Energy, in partnership with—

4 (A) multiple offices of the Department of
5 Energy, including—

6 (i) the Office of Energy Efficiency
7 and Renewable Energy;

8 (ii) the Office of Fossil Energy;

9 (iii) the Office of Electricity; and

10 (iv) the Office of Cybersecurity, En-
11 ergy Security, and Emergency Response;

12 (B) National Laboratories;

13 (C) institutions of higher education; and

14 (D) the private sector.

15 (3) GOALS AND MILESTONES.—The Secretary
16 shall establish goals and milestones for the program,
17 including the goals of—

18 (A) expanding emissions-reducing energy
19 technologies to the transportation and indus-
20 trial sectors by leveraging—

21 (i) the nuclear reactor fleet of the
22 United States;

23 (ii) advanced nuclear;

24 (iii) renewable energy;

1 (iv) carbon capture, use, and storage;

2 and

3 (v) the energy storage resources of the

4 United States;

5 (B) ensuring the competitiveness of the

6 United States in best value, emissions-reducing

7 energy development;

8 (C) modernizing energy infrastructure with

9 emissions-reducing technology to promote—

10 (i) grid stability;

11 (ii) ramping load following;

12 (iii) rapid start;

13 (iv) intermittency; and

14 (v) resiliency;

15 (D) establishing a domestic supply chain

16 of—

17 (i) nuclear reactor and appurtenant

18 equipment; and

19 (ii) advanced coolants;

20 (E) enhancing and accelerating domestic

21 manufacturing and desalinization technologies

22 and processes by optimally using clean energy

23 sources; and

24 (F) mitigating vulnerability to—

- 1 (i) transmission congestion on the
- 2 power grid;
- 3 (ii) cyberattack;
- 4 (iii) physical attack; and
- 5 (iv) natural phenomena.

6 (c) RESEARCH GOALS.—Research goals under the
7 program shall include—

8 (1) technology innovation to further the expan-
9 sion of emissions-reducing energy technologies to ac-
10 commodate a modern, resilient grid system by—

11 (A) effectively leveraging multiple energy
12 sources;

13 (B) enhancing and streamlining engineer-
14 ing design;

15 (C) carrying out process demonstrations to
16 optimize performance;

17 (D) addressing safety by design; and

18 (E) streamlining regulatory review;

19 (2) the most efficient use of emissions-reducing
20 energy technologies for hydrogen production to sup-
21 port transportation and industrial needs;

22 (3) water processing and purification to support
23 industrial and municipal potable and cooling water
24 needs;

1 (4) conversion of carbon feedstock (such as
2 coal, biomass, natural gas, and refuse waste) to
3 higher value nonelectric commodities;

4 (5) the use of carbon dioxide in nonelectric
5 commodities;

6 (6) advanced power cycles, extraction, and proc-
7 essing of complex hydrocarbons to produce high-
8 value chemicals;

9 (7) more effective thermal energy use, trans-
10 port, and storage;

11 (8) the demonstration of nuclear energy deliv-
12 ery for—

13 (A) the production of chemicals, metals,
14 and fuels;

15 (B) the capture, use, and storage of car-
16 bon; and

17 (C) renewable integration with an inte-
18 grated energy system; and

19 (9) the development of new analysis capabilities
20 to identify the best ways—

21 (A) to leverage multiple energy sources in
22 a given region; and

23 (B) to quantify the benefits of integrated
24 energy systems.

1 (d) GRANTS.—The Secretary may award grants
2 under the program to support the goals of the program.

3 (e) AUTHORIZATION OF APPROPRIATIONS.—There is
4 authorized to be appropriated to the Secretary to carry
5 out the program \$50,000,000 for each of fiscal years 2020
6 through 2029.

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