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(Original Signature of Member)

116TH CONGRESS
2D SESSION

H. R.

To establish and support advanced nuclear energy research and development programs at the Department of Energy, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. FULCHER introduced the following bill; which was referred to the Committee on _____

A BILL

To establish and support advanced nuclear energy research and development programs at the Department of Energy, 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; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the
5 “Next Generation Nuclear Advancement Act of 2020”.

6 (b) TABLE OF CONTENTS.—The table of contents for
7 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Integrated energy systems program.

- Sec. 3. Report on duplicative programs.
- Sec. 4. Light water reactor sustainability program.
- Sec. 5. Nuclear energy strategic plan.

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

2 (a) DEFINITIONS.—In this section:

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

6 (2) SECRETARY.—The term “Secretary” means
7 the Secretary of Energy.

8 (b) ESTABLISHMENT.—

9 (1) IN GENERAL.—The Secretary shall establish
10 a program, to be known as the “Integrated Energy
11 Systems Program”—

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

14 (B) to develop energy systems involving
15 the integration of nuclear energy with renew-
16 able energy, fossil energy, and energy storage;
17 and

18 (C) to expand the use of emissions-reduc-
19 ing energy technologies into nonelectric sectors
20 to achieve significant reductions in environ-
21 mental emissions.

22 (2) PROGRAM ADMINISTRATION; PARTNERS.—

23 The program shall be carried out by the Undersecre-
24 tary of Energy, in partnership with—

1 (A) relevant offices within the Department
2 of Energy;

3 (B) National Laboratories;

4 (C) institutions of higher education; and

5 (D) the private sector.

6 (3) GOALS AND MILESTONES.—The Secretary
7 shall establish quantitative goals and milestones for
8 the program.

9 (c) RESEARCH AREAS.—Research areas under the
10 program may include—

11 (1) technology innovation to further the expansion
12 of emissions-reducing energy technologies to accommodate
13 a modern, resilient grid system by—

14 (A) effectively leveraging multiple energy
15 sources;

16 (B) enhancing and streamlining engineering
17 design;

18 (C) carrying out process demonstrations to
19 optimize performance; and

20 (D) streamlining regulatory review;

21 (2) advanced power cycles, energy extraction,
22 and processing of complex hydrocarbons to produce
23 high-value chemicals;

1 (3) efficient use of emissions-reducing energy
2 technologies for hydrogen production to support
3 transportation and industrial needs;

4 (4) enhancement and acceleration of domestic
5 manufacturing and desalinization technologies and
6 processes by optimally using clean energy sources;

7 (5) more effective thermal energy use, trans-
8 port, and storage;

9 (6) the demonstration of nuclear energy deliv-
10 ery for—

11 (A) the production of chemicals, metals,
12 and fuels;

13 (B) the capture, use, and storage of car-
14 bon;

15 (C) renewable integration with an inte-
16 grated energy system; and

17 (D) conversion of carbon feedstock, such
18 as coal, biomass, natural gas, and refuse waste,
19 to higher value nonelectric commodities;

20 (7) the development of new analysis capabilities
21 to identify the best ways—

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

24 (B) to quantify the benefits of integrated
25 energy systems; and

1 “(3) to enable the continued operation of exist-
2 ing nuclear power plants through technology devel-
3 opment;

4 “(4) to improve the performance and reduce the
5 operation and maintenance costs of nuclear power
6 plants;

7 “(5) to promote the use of high-performance
8 computing to simulate nuclear reactor processes;

9 “(6) to coordinate with other research and de-
10 velopment programs of the Office of Nuclear Energy
11 to ensure that developed technologies and capabili-
12 ties are part of an integrated investment strategy,
13 the overall focus of which is improving the safety,
14 security, reliability, and economics of operating nu-
15 clear power plants; and

16 “(7) to focus on—

17 “(A) new capabilities relating to nuclear
18 energy research and development;

19 “(B) enabling technologies beyond indi-
20 vidual programs;

21 “(C) coordinating capabilities among the
22 research and development programs of the Of-
23 fice of Nuclear Energy;

24 “(D) examining new classes of materials
25 not considered for nuclear applications;

1 “(E) high-risk research, which could poten-
2 tially overcome technological limitations; and

3 “(F) the potential for industry partner-
4 ships to develop technologies relating to stor-
5 age, hydrogen production, high-temperature
6 process heat, and other relevant areas.”.

7 **SEC. 5. NUCLEAR ENERGY STRATEGIC PLAN.**

8 (a) IN GENERAL.—Subtitle E of title IX of the En-
9 ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) is
10 amended by adding at the end the following:

11 **“SEC. 959A. NUCLEAR ENERGY STRATEGIC PLAN.**

12 “(a) IN GENERAL.—Not later than 1 year after the
13 date of enactment of this Act, the Secretary shall submit
14 to the Committee on Energy and Natural Resources of
15 the Senate and the Committees on Energy and Commerce
16 and Science, Space, and Technology of the House of Rep-
17 resentatives a 10-year strategic plan for the Office of Nu-
18 clear Energy of the Department, in accordance with this
19 section.

20 “(b) REQUIREMENTS.—In developing the strategic
21 plan under this section, the Secretary shall specify ex-
22 pected timelines for, as applicable—

23 “(1) the accomplishment of relevant objectives
24 under current programs of the Department; or

1 “(2) the commencement of new programs to ac-
2 complish those objectives.

3 “(c) UPDATES.—Not less frequently than once every
4 2 years, the Secretary shall submit to the Committee on
5 Energy and Natural Resources of the Senate and the
6 Committees on Energy and Commerce and Science, Space,
7 and Technology of the House of Representatives an up-
8 dated 10-year strategic plan in accordance with subsection
9 (b), which shall identify, and provide a justification for,
10 any major deviation from a previous strategic plan sub-
11 mitted under this section.”.

12 (b) TABLE OF CONTENTS.—Section 1(b) of the En-
13 ergy Policy Act of 2005 (42 U.S.C. 15801 note) is amend-
14 ed in the table of contents by inserting after the item re-
15 lating to section 959 the following:

“Sec. 959A. Nuclear energy strategic plan.”.