

Union Calendar No. 418

115TH CONGRESS
2^D SESSION

H. R. 4376

[Report No. 115-556]

To direct the Secretary of Energy to carry out certain upgrades to research equipment and the construction of a research user facility, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 13, 2017

Mr. KNIGHT (for himself, Mr. LIPINSKI, Mr. SMITH of Texas, Mr. WEBER of Texas, and Mr. HULTGREN) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

FEBRUARY 13, 2018

Committed to the Committee of the Whole House on the State of the Union
and ordered to be printed

A BILL

To direct the Secretary of Energy to carry out certain upgrades to research equipment and the construction of a research user facility, 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 “Department of Energy
5 Research Infrastructure Act of 2017”.

6 **SEC. 2. ADVANCED LIGHT SOURCE UPGRADE.**

7 (a) IN GENERAL.—The Secretary of Energy shall
8 provide for the upgrade to the Advanced Light Source de-
9 scribed in the publication approved by the Basic Energy
10 Sciences Advisory Committee on June 9, 2016, titled “Re-
11 port on Facility Upgrades”, including the development of
12 a multi-bend achromat lattice to produce a high flux of
13 coherent x-rays within the soft x-ray energy region.

14 (b) DEFINITIONS.—In this section:

15 (1) FLUX.—The term “flux” means the rate of
16 flow of photons.

17 (2) SOFT X-RAY.—The term “soft x-ray” means
18 a photon with energy in the range from 50 to 2,000
19 electron volts.

20 (c) START OF OPERATIONS.—The Secretary shall, to
21 the maximum extent practicable, ensure that the start of
22 full operations of the upgrade under this section occurs
23 before December 31, 2026.

1 (d) FUNDING.—Out of funds appropriated to the Of-
2 fice of Science, there shall be made available to the Sec-
3 retary to carry out the upgrade under this section—

4 (1) \$20,000,000 for fiscal year 2018;

5 (2) \$50,000,000 for fiscal year 2019;

6 (3) \$80,000,000 for fiscal year 2020;

7 (4) \$80,000,000 for fiscal year 2021;

8 (5) \$52,000,000 for fiscal year 2022;

9 (6) \$22,000,000 for fiscal year 2023; and

10 (7) \$6,000,000 for fiscal year 2024.

11 **SEC. 3. LINAC COHERENT LIGHT SOURCE II HIGH ENERGY**

12 **UPGRADE.**

13 (a) IN GENERAL.—The Secretary of Energy shall
14 provide for the upgrade to the Linac Coherent Light
15 Source II facility described in the publication approved by
16 the Basic Energy Sciences Advisory Committee on June
17 9, 2016, titled “Report on Facility Upgrades”, including
18 the development of experimental capabilities for high en-
19 ergy x-rays to reveal fundamental scientific discoveries.
20 The Secretary shall ensure the upgrade under this section
21 enables the production and use of high energy, ultra-short
22 pulse x-rays delivered at a high repetition rate.

23 (b) DEFINITIONS.—In this section:

1 (1) HIGH ENERGY X-RAY.—The term a “high
2 energy x-ray” means a photon with an energy at or
3 exceeding 12 kiloelectron volts.

4 (2) HIGH REPETITION RATE.—The term “high
5 repetition rate” means the delivery of x-ray pulses
6 up to one million pulses per second.

7 (3) ULTRA-SHORT PULSE X-RAYS.—The term
8 “ultra-short pulse x-rays” means x-ray bursts capa-
9 ble of durations of less than one hundred
10 femtoseconds.

11 (c) START OF OPERATIONS.—The Secretary shall, to
12 the maximum extent practicable, ensure that the start of
13 full operations of the upgrade under this section occurs
14 before December 31, 2025.

15 (d) FUNDING.—Out of funds appropriated to the Of-
16 fice of Science, there shall be made available to the Sec-
17 retary to carry out the upgrade under this section—

18 (1) \$20,000,000 for fiscal year 2018;

19 (2) \$55,000,000 for fiscal year 2019;

20 (3) \$80,000,000 for fiscal year 2020;

21 (4) \$80,000,000 for fiscal year 2021;

22 (5) \$54,000,000 for fiscal year 2022; and

23 (6) \$31,000,000 for fiscal year 2023.

1 **SEC. 4. FACILITY FOR RARE ISOTOPE BEAMS.**

2 (a) IN GENERAL.—The Secretary of Energy shall
3 provide for a Facility for Rare Isotope Beams to advance
4 the understanding of rare nuclear isotopes and the evo-
5 lution of the cosmos.

6 (b) FACILITY CAPABILITY.—In carrying out sub-
7 section (a), the Secretary shall provide for, at a minimum,
8 a rare isotope beam facility capable of 400 kW of beam
9 power.

10 (c) START OF OPERATIONS.—The Secretary shall, to
11 the maximum extent practicable, ensure that the start of
12 full operations of the facility under this section occurs be-
13 fore June 30, 2022, with early operation in 2018.

14 (d) FUNDING.—Out of funds appropriated to the Of-
15 fice of Science, there shall be made available to the Sec-
16 retary to carry out activities, including construction of the
17 facility, under this section—

18 (1) \$101,000,000 for fiscal year 2018;

19 (2) \$103,000,000 for fiscal year 2019;

20 (3) \$104,000,000 for fiscal year 2020;

21 (4) \$105,000,000 for fiscal year 2021; and

22 (5) \$106,000,000 for fiscal year 2022.

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