

Suspend the Rules and Pass the Bill, H.R. 5640, with An Amendment

(The amendment strikes all after the enacting clause and inserts a new text)

114TH CONGRESS
2^D SESSION

H. R. 5640

To provide for the establishment at the Department of Energy of an Electricity Storage Basic Research Initiative.

IN THE HOUSE OF REPRESENTATIVES

JULY 6, 2016

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

A BILL

To provide for the establishment at the Department of Energy of an Electricity Storage Basic Research Initiative.

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 “Electricity Storage In-
5 novation Act”.

1 **SEC. 2. ELECTRICITY STORAGE BASIC RESEARCH INITIA-**
2 **TIVE.**

3 (a) AMENDMENT.—Section 975 of the Energy Policy
4 Act of 2005 (42 U.S.C. 16315) is amended to read as
5 follows:

6 **“SEC. 975. ELECTRICITY STORAGE BASIC RESEARCH INI-**
7 **TIATIVE.**

8 “(a) INITIATIVE.—

9 “(1) IN GENERAL.—The Secretary shall carry
10 out a research initiative, to be known as the Elec-
11 tricity Storage Basic Research Initiative, to expand
12 theoretical and fundamental knowledge to control,
13 store, and convert electrical energy to chemical en-
14 ergy and the inverse. This initiative shall support
15 scientific inquiry into the practical understanding of
16 chemical and physical processes that occur within
17 systems involving crystalline and amorphous solids,
18 polymers, and organic and aqueous liquids.

19 “(2) LEVERAGING.—The Secretary shall lever-
20 age expertise and resources from the Basic Energy
21 Sciences Program, Advanced Scientific Computing
22 Research Program, and Biological and Environ-
23 mental Research Program within the Office of
24 Science, and the Office of Energy Efficiency and Re-
25 newable Energy, as provided under subsections (b),
26 (c), and (d).

1 “(3) TEAMS.—The Secretary shall organize ac-
2 tivities under the Electricity Storage Basic Research
3 Initiative to include multidisciplinary teams
4 leveraging expertise from the National Laboratories,
5 universities, and the private sector to the extent
6 practicable. These multidisciplinary teams shall pur-
7 sue aggressive, milestone-driven basic research goals.
8 The Secretary shall provide sufficient resources for
9 those teams to achieve those goals over a period of
10 time to be determined by the Secretary.

11 “(4) ADDITIONAL ACTIVITIES.—The Secretary
12 is authorized to organize additional activities under
13 this subsection through Energy Frontier Research
14 Centers, Energy Innovation Hubs, or other organiza-
15 tional structures.

16 “(b) MULTIVALENT SYSTEMS.—

17 “(1) IN GENERAL.—The Secretary shall, as
18 part of the Electricity Storage Basic Research Ini-
19 tiative, carry out a program to support research
20 needed to bridge scientific barriers and discover
21 knowledge relevant to multivalent ion materials in
22 electric energy storage systems. In carrying out ac-
23 tivities under this subsection, the Director of the Of-
24 fice of Basic Energy Sciences shall investigate elec-
25 trochemical properties and the dynamics of mate-

1 rials, including charge transfer phenomena and mass
2 transport in materials. The Assistant Secretary for
3 Energy Efficiency and Renewable Energy shall sup-
4 port translational research, development, and valida-
5 tion of physical concepts developed under this sub-
6 section.

7 “(2) STANDARD OF REVIEW.—The Secretary
8 shall review the program activities under this sub-
9 section to determine the achievement of technical
10 milestones.

11 “(3) AUTHORIZATION OF APPROPRIATIONS.—

12 “(A) AUTHORIZATION.—Subject to sub-
13 section (e), there are authorized for carrying
14 out activities under this subsection for each of
15 fiscal years 2017 through 2020—

16 “(i) \$50,000,000 from funds within
17 the Basic Energy Sciences Program ac-
18 count; and

19 “(ii) \$25,000,000 from funds within
20 the Energy Efficiency and Renewable En-
21 ergy account.

22 “(B) PROHIBITION.—No funds authorized
23 under this subsection may be obligated or ex-
24 pended for commercial application of energy
25 technology.

1 “(c) ELECTROCHEMISTRY MODELING AND SIMULA-
2 TION.—

3 “(1) IN GENERAL.—The Secretary shall, as
4 part of the Electricity Storage Basic Research Ini-
5 tiative, carry out a program to support research to
6 model and simulate organic electrolytes, including
7 their static and dynamic electrochemical behavior
8 and phenomena at the molecular and atomic level in
9 monovalent and multivalent systems. In carrying out
10 activities under this subsection, the Director of the
11 Office of Basic Energy Sciences shall, in coordina-
12 tion with the Associate Director of Advanced Sci-
13 entific Computing Research, support the develop-
14 ment of high performance computational tools
15 through a joint development process to maximize the
16 effectiveness of current and projected high perform-
17 ance computing systems. The Assistant Secretary
18 for Energy Efficiency and Renewable Energy shall
19 support translational research, development, and val-
20 idation of physical concepts developed under this
21 subsection.

22 “(2) STANDARD OF REVIEW.—The Secretary
23 shall review the program activities under this sub-
24 section to determine the achievement of technical
25 milestones.

1 “(3) AUTHORIZATION OF APPROPRIATIONS.—

2 “(A) AUTHORIZATION.—Subject to sub-
3 section (e), there are authorized for carrying
4 out activities under this subsection for each of
5 fiscal years 2017 through 2020—

6 “(i) \$30,000,000 from funds within
7 the Basic Energy Sciences Program and
8 Advanced Scientific Computing Research
9 Program accounts; and

10 “(ii) \$15,000,000 from funds within
11 the Energy Efficiency and Renewable En-
12 ergy account.

13 “(B) PROHIBITION.—No funds authorized
14 under this subsection may be obligated or ex-
15 pended for commercial application of energy
16 technology.

17 “(d) MESOSCALE ELECTROCHEMISTRY.—

18 “(1) IN GENERAL.—The Secretary shall, as
19 part of the Electricity Storage Basic Research Ini-
20 tiative, carry out a program to support research
21 needed to reveal electrochemistry in confined
22 mesoscale spaces, including scientific discoveries rel-
23 evant to bio-electrochemistry and electrochemical en-
24 ergy conversion and storage in confined spaces and
25 the dynamics of these phenomena. In carrying out

1 activities under this subsection, the Director of the
2 Office of Basic Energy Sciences and the Associate
3 Director of Biological and Environmental Research
4 shall investigate phenomena of mesoscale electro-
5 chemical confinement for the purpose of replicating
6 and controlling new electrochemical behavior. The
7 Assistant Secretary for Energy Efficiency and Re-
8 newable Energy shall support translational research,
9 development, and validation of physical concepts de-
10 veloped under this subsection.

11 “(2) STANDARD OF REVIEW.—The Secretary
12 shall review the program activities under this sub-
13 section to determine the achievement of technical
14 milestones.

15 “(3) AUTHORIZATION OF APPROPRIATIONS.—

16 “(A) AUTHORIZATION.—Subject to sub-
17 section (e), there are authorized for carrying
18 out activities under this subsection for each of
19 fiscal years 2017 through 2020—

20 “(i) \$20,000,000 from funds within
21 the Basic Energy Sciences Program and
22 the Biological and Environmental Research
23 Program accounts; and

1 “(ii) \$10,000,000 from funds within
2 the Energy Efficiency and Renewable En-
3 ergy account.

4 “(B) PROHIBITION.—No funds authorized
5 under this subsection may be obligated or ex-
6 pended for commercial application of energy
7 technology.

8 “(e) FUNDING.—No additional funds are authorized
9 to be appropriated under this section. This section shall
10 be carried out using funds otherwise authorized by law.”.

11 (b) TABLE OF CONTENTS AMENDMENT.—The item
12 relating to section 975 in the table of contents of such
13 Act is amended to read as follows:

 “Sec. 975. Electricity Storage Basic Research Initiative.”.