

114TH CONGRESS  
1ST SESSION

# H. R. 3413

To require a report on requirements and risks in connection with the use of radioisotopic power systems for space exploration beyond low-Earth orbit.

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## IN THE HOUSE OF REPRESENTATIVES

JULY 29, 2015

Mr. STIVERS (for himself, Mr. JOHNSON of Ohio, and Ms. FUDGE) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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## A BILL

To require a report on requirements and risks in connection with the use of radioisotopic power systems for space exploration beyond low-Earth orbit.

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 “Efficient Space Explo-  
5 ration Act”.

1 **SEC. 2. REPORT ON REQUIREMENTS AND RISKS IN USE OF**  
2 **RADIOISOTOPIC POWER SYSTEMS FOR SPACE**  
3 **EXPLORATION BEYOND LOW-EARTH ORBIT.**

4 (a) SENSE OF CONGRESS.—It is the sense of Con-  
5 gress that—

6 (1) conducting deep space exploration requires  
7 radioisotope power systems, such as thermoelectric  
8 and Stirling generators and converters;

9 (2) establishing continuity in the production of  
10 the material needed to power such radioisotope  
11 power systems is paramount to the success of future  
12 deep space missions; and

13 (3) Federal agencies supporting the National  
14 Aeronautics and Space Administration through the  
15 production of the material described in paragraph  
16 (2) should do so in a cost effective manner so as not  
17 to impose excessive reimbursement requirements on  
18 the Administration.

19 (b) ANALYSIS OF REQUIREMENTS AND RISKS.—The  
20 Director of the Office of Science and Technology Policy  
21 and the Administrator of the National Aeronautics and  
22 Space Administration, in consultation with the heads of  
23 other Federal agencies, conduct an analysis of—

24 (1) the requirements of the National Aero-  
25 nautics and Space Administration for radioisotope  
26 power system material that is needed to carry out

1 planned, high priority robotic missions in the solar  
2 system and other surface exploration activities be-  
3 yond low-Earth orbit; and

4 (2) the risks to missions of the Administration  
5 in meeting those requirements, or any additional re-  
6 quirements, due to a lack of adequate radioisotope  
7 power system material.

8 (c) CONTENTS OF ANALYSIS.—The analysis con-  
9 ducted under subsection (b) shall—

10 (1) detail the current projected mission require-  
11 ments and associated timeframes for radioisotope  
12 power systems and radioisotope power system mate-  
13 rial;

14 (2) explain the assumptions used to determine  
15 the requirements of the National Aeronautics and  
16 Space Administration for the material, including—

17 (A) the planned use of advanced thermal  
18 conversion technology, such as advanced  
19 thermocouples and Stirling generators and con-  
20 verters; and

21 (B) the risks and implications of, and con-  
22 tingencies for, any delays or unanticipated tech-  
23 nical challenges affecting or related to the mis-  
24 sion plans of the Administration for the antici-

1           pated use of advanced thermal conversion tech-  
2           nology;

3           (3) assess the risk to the programs of the Ad-  
4           ministration of any potential delays in achieving the  
5           schedule and milestones for planned domestic pro-  
6           duction of radioisotope power system material;

7           (4) outline a process for meeting any additional  
8           Administration requirements for the material;

9           (5) estimate the incremental costs required to  
10          increase the amount of material produced each year,  
11          if such an increase is needed to support additional  
12          Administration requirements for the material;

13          (6) detail how the Administration and other  
14          Federal agencies will manage, operate, and fund  
15          production facilities and the design and development  
16          of all radioisotope power systems used by the Ad-  
17          ministration and other Federal agencies as nec-  
18          essary;

19          (7) specify the steps the Administrator will  
20          take, in consultation with the Secretary of Energy,  
21          to preserve the infrastructure and workforce nec-  
22          essary for production of radioisotope power systems  
23          and ensure that Administration reimbursements to  
24          the Department of Energy associated with such  
25          preservation are equitable and justified;

1           (8) identify the steps the Administrator will  
2           take to preserve taxpayer investment to date in Ad-  
3           vanced Stirling Convertor technology; and

4           (9) detail how the Administrator has imple-  
5           mented or rejected the recommendations of the Na-  
6           tional Research Council in the 2009 report titled  
7           “Radioisotope Power Systems: An Imperative for  
8           Maintaining U.S. Leadership in Space Exploration”.

9           (d) TRANSMITTAL.—Not later than 180 days after  
10          the date of the enactment of this Act, the Administrator  
11          of the National Aeronautics and Space Administration  
12          shall transmit the results of the analysis conducted under  
13          subsection (b) to the Committee on Commerce, Science,  
14          and Transportation of the Senate and the Committee on  
15          Science, Space, and Technology of the House of Rep-  
16          resentatives.

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