

114TH CONGRESS
1ST SESSION

S. 1829

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

IN THE SENATE OF THE UNITED STATES

JULY 22, 2015

Mr. PORTMAN (for himself and Mr. BROWN) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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, shall 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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