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2<sup>D</sup> SESSION

# H. R. 1215

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IN THE SENATE OF THE UNITED STATES

SEPTEMBER 27, 2006

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Read twice and referred to the Committee on Commerce, Science, and  
Transportation

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## AN ACT

To provide for the implementation of a Green Chemistry  
Research and Development Program, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Green Chemistry Re-  
3 search and Development Act of 2005”.

4 **SEC. 2. DEFINITIONS.**

5 In this Act—

6 (1) the term “green chemistry” means chem-  
7 istry and chemical engineering to design chemical  
8 products and processes that reduce or eliminate the  
9 use or generation of hazardous substances while pro-  
10 ducing high quality products through safe and effi-  
11 cient manufacturing processes;

12 (2) the term “Interagency Working Group”  
13 means the interagency working group established  
14 under section 3(c); and

15 (3) the term “Program” means the Green  
16 Chemistry Research and Development Program de-  
17 scribed in section 3.

18 **SEC. 3. GREEN CHEMISTRY RESEARCH AND DEVELOPMENT**  
19 **PROGRAM.**

20 (a) **IN GENERAL.**—The President shall establish a  
21 Green Chemistry Research and Development Program to  
22 promote and coordinate Federal green chemistry research,  
23 development, demonstration, education, and technology  
24 transfer activities.

25 (b) **PROGRAM ACTIVITIES.**—The activities of the Pro-  
26 gram shall be designed to—

1           (1) provide sustained support for green chem-  
2           istry research, development, demonstration, edu-  
3           cation, and technology transfer through—

4                   (A) merit-reviewed competitive grants to  
5           individual investigators and teams of investiga-  
6           tors, including, to the extent practicable, young  
7           investigators, for research and development;

8                   (B) grants to fund collaborative research  
9           and development partnerships among univer-  
10          sities, industry, and nonprofit organizations;

11                  (C) green chemistry research, development,  
12          demonstration, and technology transfer con-  
13          ducted at Federal laboratories; and

14                  (D) to the extent practicable, encourage-  
15          ment of consideration of green chemistry in—

16                          (i) the conduct of Federal chemical  
17                          science and engineering research and de-  
18                          velopment; and

19                          (ii) the solicitation and evaluation of  
20                          all proposals for chemical science and engi-  
21                          neering research and development;

22           (2) examine methods by which the Federal Gov-  
23           ernment can create incentives for consideration and  
24           use of green chemistry processes and products;

1           (3) facilitate the adoption of green chemistry  
2 innovations;

3           (4) expand education and training of under-  
4 graduate and graduate students, and professional  
5 chemists and chemical engineers, including through  
6 partnerships with industry, in green chemistry  
7 science and engineering;

8           (5) collect and disseminate information on  
9 green chemistry research, development, and tech-  
10 nology transfer, including information on—

11                 (A) incentives and impediments to develop-  
12 ment and commercialization;

13                 (B) accomplishments;

14                 (C) best practices; and

15                 (D) costs and benefits;

16           (6) provide venues for outreach and dissemina-  
17 tion of green chemistry advances such as symposia,  
18 forums, conferences, and written materials in col-  
19 laboration with, as appropriate, industry, academia,  
20 scientific and professional societies, and other rel-  
21 evant groups;

22           (7) support economic, legal, and other appro-  
23 priate social science research to identify barriers to  
24 commercialization and methods to advance commer-  
25 cialization of green chemistry; and

1           (8) provide for public input and outreach to be  
2           integrated into the Program by the convening of  
3           public discussions, through mechanisms such as cit-  
4           izen panels, consensus conferences, and educational  
5           events, as appropriate.

6           (c) INTERAGENCY WORKING GROUP.—The President  
7           shall establish an Interagency Working Group, which shall  
8           include representatives from the National Science Founda-  
9           tion, the National Institute of Standards and Technology,  
10          the Department of Energy, the Environmental Protection  
11          Agency, and any other agency that the President may des-  
12          ignate. The Director of the National Science Foundation  
13          and the Assistant Administrator for Research and Devel-  
14          opment of the Environmental Protection Agency shall  
15          serve as co-chairs of the Interagency Working Group. The  
16          Interagency Working Group shall oversee the planning,  
17          management, and coordination of the Program. The Inter-  
18          agency Working Group shall—

19                (1) establish goals and priorities for the Pro-  
20                gram, to the extent practicable in consultation with  
21                green chemistry researchers and potential end-users  
22                of green chemistry products and processes; and

23                (2) provide for interagency coordination, includ-  
24                ing budget coordination, of activities under the Pro-  
25                gram.

1           (d) AGENCY BUDGET REQUESTS.—Each Federal  
2 agency and department participating in the Program  
3 shall, as part of its annual request for appropriations to  
4 the Office of Management and Budget, submit a report  
5 to the Office of Management and Budget which identifies  
6 its activities that contribute directly to the Program and  
7 states the portion of its request for appropriations that  
8 is allocated to those activities. The President shall include  
9 in his annual budget request to Congress a statement of  
10 the portion of each agency’s or department’s annual budg-  
11 et request allocated to its activities undertaken pursuant  
12 to the Program.

13           (e) REPORT TO CONGRESS.—Not later than 2 years  
14 after the date of enactment of this Act, the Interagency  
15 Working Group shall transmit a report to the Committee  
16 on Science of the House of Representatives and the Com-  
17 mittee on Commerce, Science, and Transportation of the  
18 Senate. This report shall include—

19                   (1) a summary of federally funded green chem-  
20 istry research, development, demonstration, edu-  
21 cation, and technology transfer activities, including  
22 the green chemistry budget for each of these activi-  
23 ties; and

1           (2) an analysis of the progress made toward  
2           achieving the goals and priorities for the Program,  
3           and recommendations for future program activities.

4 **SEC. 4. MANUFACTURING EXTENSION CENTER GREEN SUP-**  
5 **PLIERS NETWORK GRANT PROGRAM.**

6           Section 25(a) of the National Institute of Standards  
7 and Technology Act (15 U.S.C. 278k(a)) is amended—

8           (1) by striking “and” at the end of paragraph  
9           (4);

10          (2) by striking the period at the end of para-  
11 graph (5) and inserting “; and”; and

12          (3) by adding at the end the following:

13           “(6) the enabling of supply chain manufactur-  
14           ers to continuously improve products and processes,  
15           increase energy efficiency, identify cost-saving oppor-  
16           tunities, and optimize resources and technologies  
17           with the aim of reducing or eliminating the use or  
18           generation of hazardous substances.”.

19 **SEC. 5. UNDERGRADUATE EDUCATION IN CHEMISTRY AND**  
20 **CHEMICAL ENGINEERING.**

21           (a) PROGRAM AUTHORIZED.—(1) As part of the Pro-  
22 gram activities under section 3(b)(4), the Director of the  
23 National Science Foundation shall carry out a program  
24 to award grants to institutions of higher education to sup-  
25 port efforts by such institutions to revise their under-

1 graduate curriculum in chemistry and chemical engineer-  
2 ing to incorporate green chemistry concepts and strate-  
3 gies.

4 (2) Grants shall be awarded under this section on a  
5 competitive, merit-reviewed basis and shall require cost  
6 sharing in cash from non-Federal sources, to match the  
7 Federal funding.

8 (b) SELECTION PROCESS.—(1) An institution of  
9 higher education seeking funding under this section shall  
10 submit an application to the Director at such time, in such  
11 manner, and containing such information as the Director  
12 may require. The application shall include at a min-  
13 imum—

14 (A) a description of the content and schedule  
15 for adoption of the proposed curricular revisions to  
16 the courses of study offered by the applicant in  
17 chemistry and chemical engineering; and

18 (B) a description of the source and amount of  
19 cost sharing to be provided.

20 (2) In evaluating the applications submitted under  
21 paragraph (1), the Director shall consider, at a min-  
22 imum—

23 (A) the level of commitment demonstrated by  
24 the applicant in carrying out and sustaining lasting

1 curriculum changes in accordance with subsection  
2 (a)(1); and

3 (B) the amount of cost sharing to be provided.

4 (c) AUTHORIZATION OF APPROPRIATIONS.—In addi-  
5 tion to amounts authorized under section 8, from sums  
6 otherwise authorized to be appropriated by the National  
7 Science Foundation Authorization Act of 2002, there are  
8 authorized to be appropriated to the National Science  
9 Foundation for carrying out this section \$7,000,000 for  
10 fiscal year 2006, \$7,500,000 for fiscal year 2007, and  
11 \$8,000,000 for fiscal year 2008.

12 **SEC. 6. STUDY ON COMMERCIALIZATION OF GREEN CHEM-**  
13 **ISTRY.**

14 (a) STUDY.—The Director of the National Science  
15 Foundation shall enter into an arrangement with the Na-  
16 tional Research Council to conduct a study of the factors  
17 that constitute barriers to the successful commercial appli-  
18 cation of promising results from green chemistry research  
19 and development.

20 (b) CONTENTS.—The study shall—

21 (1) examine successful and unsuccessful at-  
22 tempts at commercialization of green chemistry in  
23 the United States and abroad; and

1           (2) recommend research areas and priorities  
2           and public policy options that would help to over-  
3           come identified barriers to commercialization.

4           (c) REPORT.—The Director shall submit a report to  
5           the Committee on Science of the House of Representatives  
6           and the Committee on Commerce, Science, and Transpor-  
7           tation of the Senate on the findings and recommendations  
8           of the study within 18 months after the date of enactment  
9           of this Act.

10 **SEC. 7. PARTNERSHIPS IN GREEN CHEMISTRY.**

11           (a) PROGRAM AUTHORIZED.—(1) The agencies par-  
12           ticipating in the Program shall carry out a joint, coordi-  
13           nated program to award grants to institutions of higher  
14           education to establish partnerships with companies in the  
15           chemical industry to retrain chemists and chemical engi-  
16           neers in the use of green chemistry concepts and strate-  
17           gies.

18           (2) Grants shall be awarded under this section on a  
19           competitive, merit-reviewed basis and shall require cost  
20           sharing from non-Federal sources by members of the part-  
21           nerships.

22           (3) In order to be eligible to receive a grant under  
23           this section, an institution of higher education shall enter  
24           into a partnership with two or more companies in the  
25           chemical industry. Such partnerships may also include

1 other institutions of higher education and professional as-  
2 sociations.

3 (4) Grants awarded under this section shall be used  
4 for activities to provide retraining for chemists or chemical  
5 engineers in green chemistry, including—

6 (A) the development of curricular materials and  
7 the designing of undergraduate and graduate level  
8 courses; and

9 (B) publicizing the availability of professional  
10 development courses of study in green chemistry and  
11 recruiting graduate scientists and engineers to pur-  
12 sue such courses.

13 Grants may provide stipends for individuals enrolled in  
14 courses developed by the partnership.

15 (b) SELECTION PROCESS.—(1) An institution of  
16 higher education seeking funding under this section shall  
17 submit an application at such time, in such manner, and  
18 containing such information as shall be specified by the  
19 Interagency Working Group and published in a proposal  
20 solicitation for the Program. The application shall include  
21 at a minimum—

22 (A) a description of the partnership and the  
23 role each member will play in implementing the pro-  
24 posal;

1 (B) a description of the courses of study that  
2 will be provided;

3 (C) a description of the number and size of sti-  
4 pends, if offered;

5 (D) a description of the source and amount of  
6 cost sharing to be provided; and

7 (E) a description of the manner in which the  
8 partnership will be continued after assistance under  
9 this section ends.

10 (2) The evaluation of the applications submitted  
11 under paragraph (1) shall be carried out in accordance  
12 with procedures developed by the Interagency Working  
13 Group and shall consider, at a minimum—

14 (A) the ability of the partnership to carry out  
15 effectively the proposed activities;

16 (B) the degree to which such activities are like-  
17 ly to prepare chemists and chemical engineers suffi-  
18 ciently to be competent to apply green chemistry  
19 concepts and strategies in their work; and

20 (C) the amount of cost sharing to be provided.

21 **SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

22 (a) NATIONAL SCIENCE FOUNDATION.—(1) From  
23 sums otherwise authorized to be appropriated by the Na-  
24 tional Science Foundation Authorization Act of 2002,

1 there are authorized to be appropriated to the National  
2 Science Foundation for carrying out this Act—

3 (A) \$7,000,000 for fiscal year 2006;

4 (B) \$7,500,000 for fiscal year 2007; and

5 (C) \$8,000,000 for fiscal year 2008.

6 (2) The sums authorized by paragraph (1) are in ad-  
7 dition to any funds the National Science Foundation is  
8 spending on green chemistry through its ongoing chem-  
9 istry and chemical engineering programs.

10 (b) NATIONAL INSTITUTE OF STANDARDS AND  
11 TECHNOLOGY.—From sums otherwise authorized to be  
12 appropriated, there are authorized to be appropriated to  
13 the National Institute of Standards and Technology for  
14 carrying out this Act—

15 (1) \$5,000,000 for fiscal year 2006;

16 (2) \$5,500,000 for fiscal year 2007; and

17 (3) \$6,000,000 for fiscal year 2008.

18 (c) DEPARTMENT OF ENERGY.—From sums other-  
19 wise authorized to be appropriated, there are authorized  
20 to be appropriated to the Department of Energy for car-  
21 rying out this Act—

22 (1) \$7,000,000 for fiscal year 2006;

23 (2) \$7,500,000 for fiscal year 2007; and

24 (3) \$8,000,000 for fiscal year 2008.

1       (d) ENVIRONMENTAL PROTECTION AGENCY.—From  
2 sums otherwise authorized to be appropriated, there are  
3 authorized to be appropriated to the Environmental Pro-  
4 tection Agency for carrying out this Act—

5           (1) \$7,000,000 for fiscal year 2006;

6           (2) \$7,500,000 for fiscal year 2007; and

7           (3) \$8,000,000 for fiscal year 2008.

Passed the House of Representatives September 26,  
2006.

Attest:

KAREN L. HAAS,

*Clerk.*